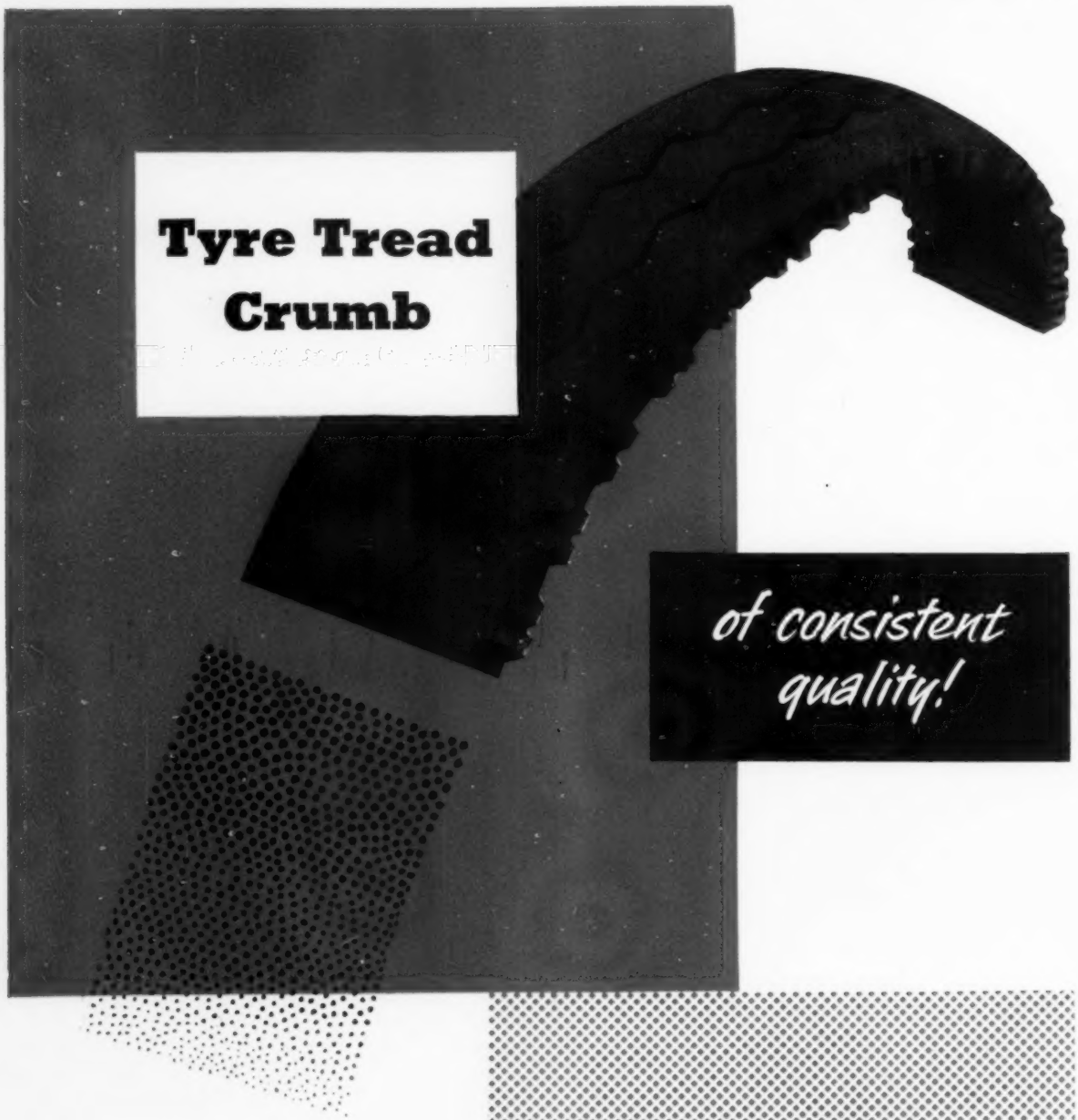
RUBBER and PLASTICS WEEKLY

VOLUME 161 NO. 20 NOVEMBER 11 1961 ONE SHILLING

Chemicals for plastics and rubbers Geigy

The Geigy Company Limited Rhodes Middleton Manchester



THE RUBBER REGENERATING COMPANY LTD

TRAFFORD PARK · MANCHESTER 17 · Phone: TRAfford Park 1424 · Grams: "Regenerate"

TUFTED CARPET YARNS AND COTTON AND SYNTHETIC FABRICS FOR THE RUBBER ELECTRICAL AND CHEMICAL TRADES

JOHN BRIGHT & BROTHERS LTD.

SPINNERS DOUBLERS AND MANUFACTURERS

ROCHDALE

TELEPHONE: ROCHDALE 4141 (5 LINES)

TELEGRAMS: 'BRIGHTS' ROCHDALE

ESTD. 1809

NO OTHER RUBBER MIXER RANGE OFFERS SO MUCH AS THE **SHEAR-MIX**

CONTINUOUS POWDER FEED
with *complete* dispersion
and *no* dusting

ELECTRICAL CONTROL OF LIQUID FEEDS
Oils and softeners efficiently mixed and no agglomeration

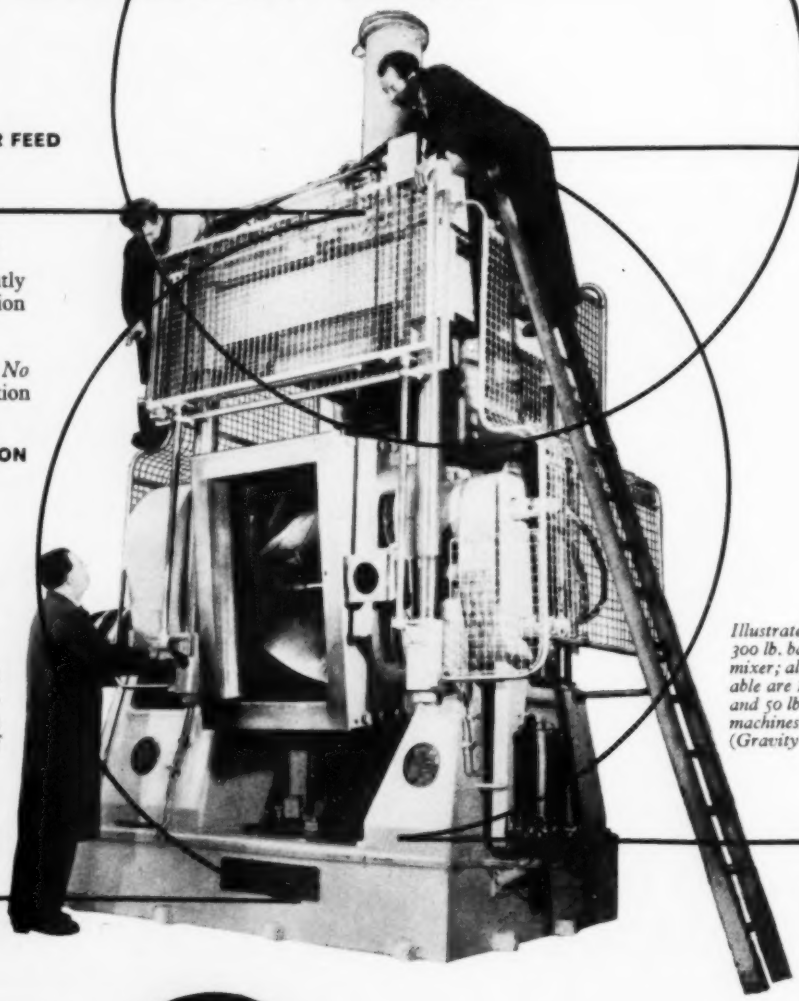
TILT DISCHARGE
Whole batch discharged. *No* batch-to-batch contamination

SPECIAL TROUGH CONSTRUCTION
Better heat transfer
No overstressed areas

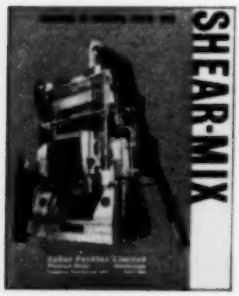
SPECIAL GLANDS
Efficient leak-proof seal ensures *no* lubrication, *no* maintenance needed

DUAL FUNCTION HYDRAULIC
Hydraulic pressure assembly tilts chamber, operates ram. *No* separate source of air needed

FLUID COUPLING
Ensures quieter, smoother running with *no* shock loadings



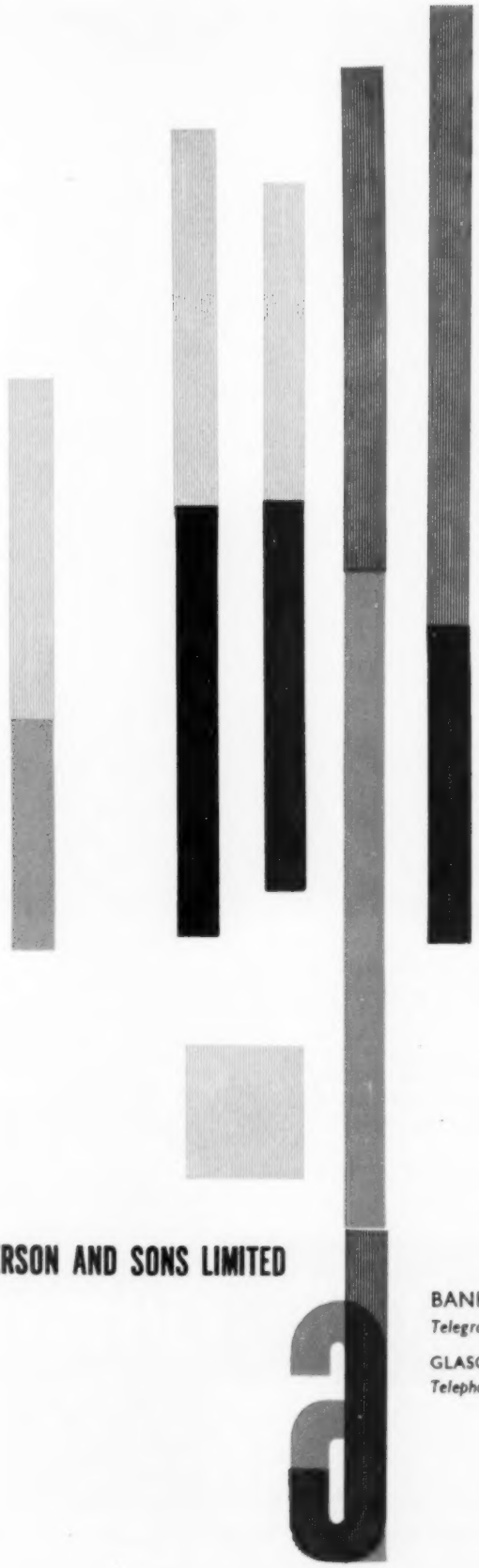
Illustrated is a 300 lb. batch mixer; also available are 120 lb. and 50 lb. machines (Gravity 1)



SEE WHY FOR YOURSELF!
Write for this 16-page brochure on the Baker Perkins SHEAR-MIX range.

Baker Perkins Limited
WESTWOOD WORKS PETERBOROUGH

B.P.B19



rubber reclaims

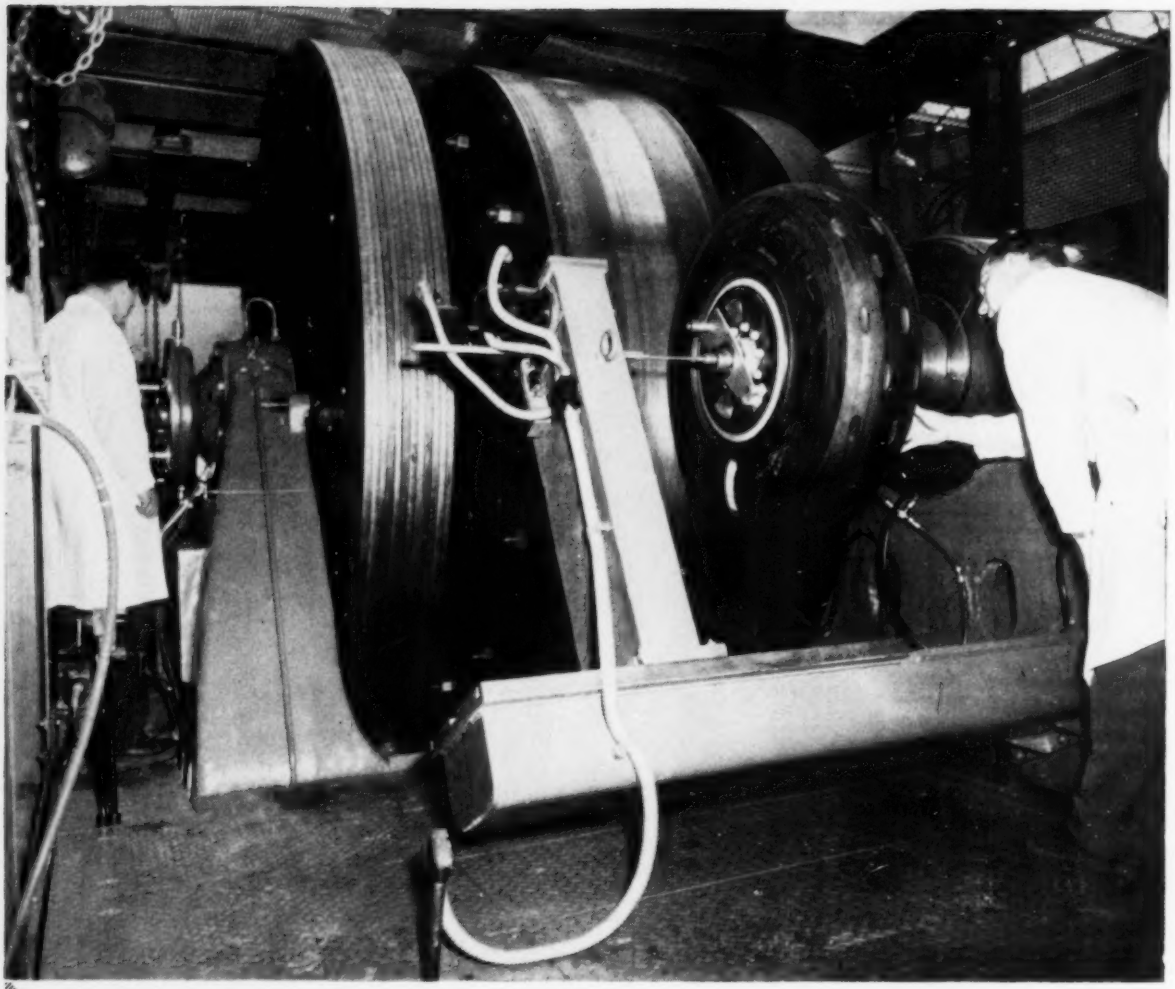
As a member of the B.R.R. group of companies our technical service is unsurpassed. We welcome enquiries concerning:

TYRE RECLAIM
RED TUBE RECLAIM
BLACK TUBE RECLAIM
DRAB RECLAIMS
MECHANICAL RECLAIM
RESIN RUBBER RECLAIM

JOSEPH ANDERSON AND SONS LIMITED

BANK STREET CLAYTON MANCHESTER 11
Telegrams : Sulphuring Manchester Telephone : East 0865

GLASGOW OFFICE 178 FULTON STREET GLASGOW W.3
Telephone : Scotstoun 2660 & 2661 Telegrams : Jagardi Glasgow



This brake and tyre testing equipment at a Dunlop factory incorporates drives and control equipment by 'ENGLISH ELECTRIC' The dynamometer test rig is driven through a clutch and speed reducing gear box by an 'ENGLISH ELECTRIC' Ward-Leonard controlled D.C. motor rated 400 h.p. 1,040 r.p.m. Control of the complete brake test cycle is fully automatic from commencement of the fly-wheel run-up to the point where it is brought to rest by the brake under test.

Publication PS/131, 'Electrical Drives in the Rubber Industry, will be sent on request.

'ENGLISH ELECTRIC'

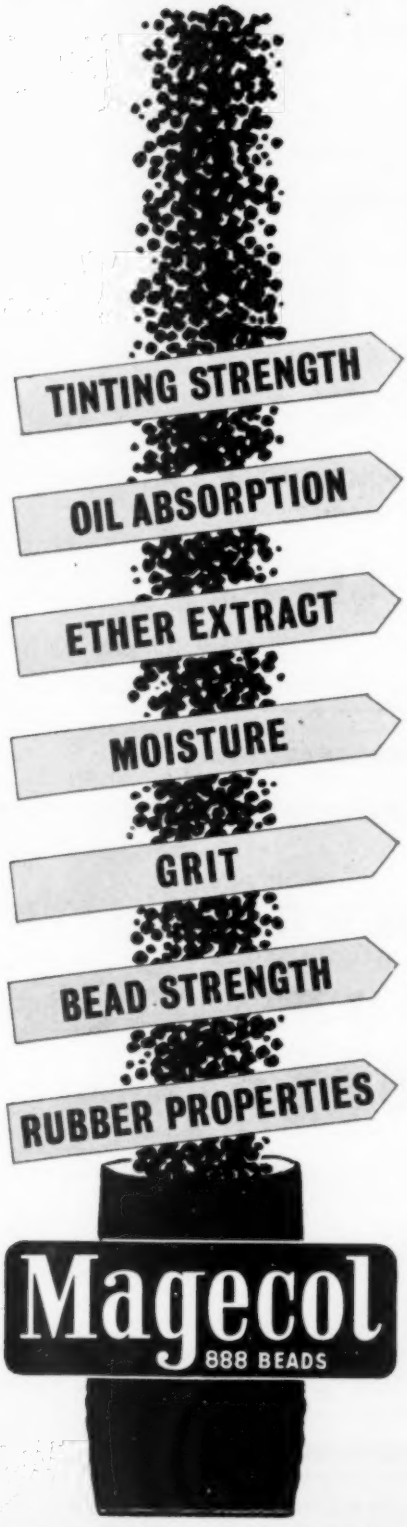
drives for the rubber industry

ELECTRICAL PLANT DIVISION, STAFFORD

The English Electric Company Limited, English Electric House, Strand, London, W.C.2.

PS.43

CONTINUOUS CONTROL CHECKS



(Manufactured by Columbian-General Blacks Ltd.)

guarantee

QUALITY and CONSISTENCY

The test applied has been proved by electron microscope to be a reliable check on particle size and reinforcement.

Is carefully controlled, since this affects structure, modulus and extrusion.

Determines surface cleanliness of Magecol 888, which is most important since it affects conductivity and processing.

Rapid infra-red tests are continually carried out to ensure minimum water content.

Gallie-Porritt sieve test, followed by microscopic check, detects particles harmful to fine extrusion.

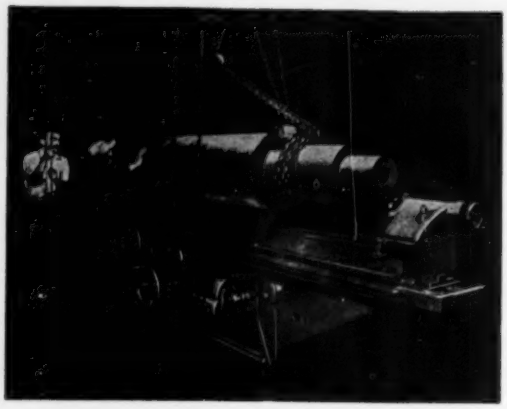
Continuous checks of bead hardness ensure free-flowing properties and optimum dispersion.

Regular checks at Columbian Laboratories and at RAPRA confirm efficiency of the above tests for Magecol 888 Beads.

For more complete information, please write for Technical Bulletins to:

COLUMBIAN INTERNATIONAL
(GREAT BRITAIN) LIMITED
116 CANNON STREET, LONDON, E.C.4
Telephone: MANsion House 5277 (PBE)
Telegrams: Noirceur, London

MILLS CONVERTED TO NEW SAFETY STANDARDS



INSTALLATION MAINTENANCE

REPAIRS NEW MACHINES

SPARE PARTS FOR ALL TYPES OF INDUSTRIAL PLANT

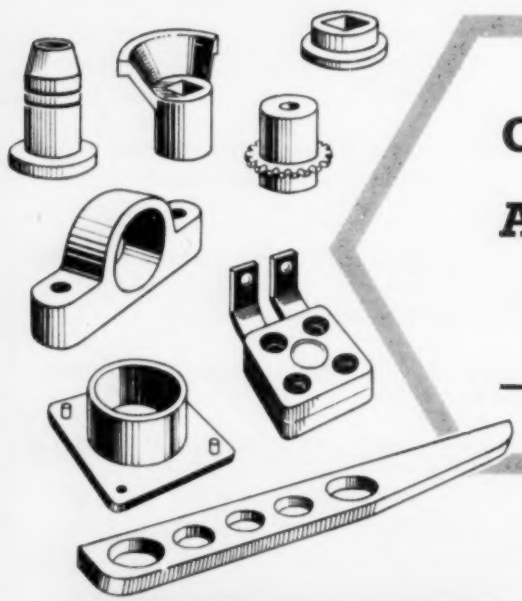
UNITS HANDLED UP TO FOUR TONS

•

ROLL GRINDING A SPECIALITY

JAMES H. PULLEN (1942) LTD.

ROTHERMERE ROAD WADDON SURREY *Telephone: Croydon 6067/8*



COMPRESSION AND INJECTION MOULDINGS

**Regular deliveries to meet your production schedule*

Lindsay & Williams
LIMITED ENGLAND

OPENSHAW BRIDGE WORKS · MANCHESTER 11 · *Tel: EAST 2686 Telex: 66269*

CM.101

factice

FOR HOME AND EXPORT

Grades: WHITE · GOLDEN · BROWN · SPECIAL

EXTENDS
PLASTICISES
SOFTENS
AIDS PROCESSING
GIVES "FEEL"
RESTRAINS BLOOM

All grades made under strict technical control and uniformity guaranteed. Our Technical Department is at your service.

as ALFRED SMITH LTD · STONEFERRY · HULL

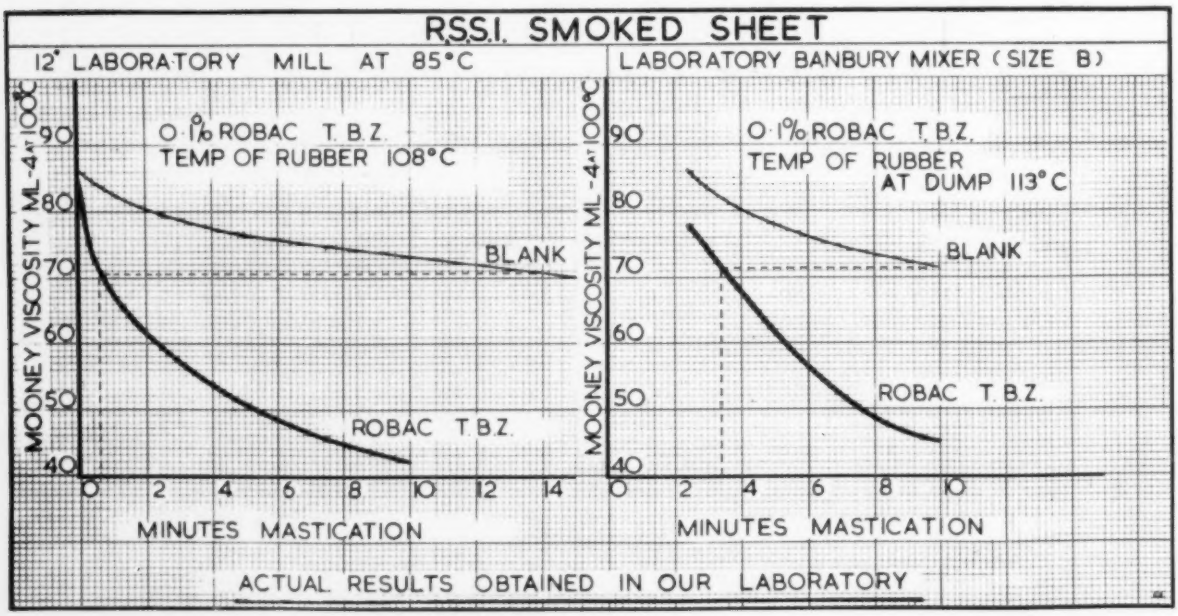
Telephone: Central 41311 (9 lines) Telex No. 52266 Cables: "Bisulphide" Hull

WORKS: Oak Road, Newland, Hull · Telephone: Central 18880
LONDON: 88 Leadenhall Street, E.C. · Telephone: Avenue 4081/3

ROBAC T.B.Z.

THE PEPTISING AGENT FOR NATURAL RUBBER

✳REDUCES BREAKDOWN TIME ✳INCREASES PRODUCTION



ROBAC T.B.Z.

Robac T.B.Z. is a peptising agent for natural rubber that is particularly effective in low temperature mastication with no appreciable activation or effect on physical properties.

Save time and power by using Robac T.B.Z. the new Robac Peptising Agent.

Literature, prices, samples and bulk quantities are now available.

ROBINSON BROTHERS LIMITED · RYDERS GREEN · WEST BROMWICH · *Tel: West Bromwich 2451/3*

M-W 76

Editorial Director: J. D. COPEMAN

Editor: PETER RANSLEY

Technical Editor: RICHARD NYE, MA

Consultant Editor: W. S. PENN, BSc

Advertisement Director: EDWARD J. BYFIELD

Advertisement Manager: MICHAEL J. WHELAN

UK Area Representatives

L. Quy, South and West of England and South Wales (Operating from London Office)

A. J. Legg, Area Manager, 55 Lee Lane West, Horsforth, Nr. Leeds. Tel. No. Horsforth 3845. North-East England, Lancashire, Yorkshire and Lincolnshire

E. R. Leaver, Group Advertising Manager, Scotland (Operating from London Office)

W. Brown, Area Manager, 13 Allerton Road, Southport, Lancashire. Tel. No. Southport 5121. Cheshire, Cumberland, Westmorland

E. Burgess, 40 Parkside Drive, Maybank, Newcastle-under-Lyme. Tel. No. 64678, Staffordshire North of the A.5

W. J. Bird, 2 Christopher Road, Quinton, Birmingham, 32. Tel. Woodgate 5804. Derbyshire, Shropshire, South Staffs., Leicestershire, Nottinghamshire, Warwickshire, Worcestershire and N. Wales

Overseas Representatives

Belgium—Albert Milhado & Co., GmbH, Pompstraat 2, Antwerp

France—John Gentry, 150 Boulevard Magenta, Paris X

Germany—Albert Milhado & Co., GmbH, Charlottenstrasse 32, Dusseldorf. Tel. No. 27217

Italy—Massimo Fano, Via V. Monti 14, Milan. Tel. No. Milan 808135

Netherlands—G. Arnold Teesing, Rubensstraat 68, Amsterdam, Z. Tel. No. 727913

United States—Overseas Publishers' Representatives, 29 West 34th Street, New York 1, N.Y. Tel. No. Bryant 9-0794

RUBBER and PLASTICS WEEKLY

Formerly 'Rubber Journal and International Plastics'

Volume 141 — IN ITS 78th YEAR — No. 20

November 11 1961

Editorial

NOTES OF THE WEEK ... 785

Articles and News

NEWS BRIEFS ... 786
STOCKPILE MOVES: STRONG PROTESTS ... 788
NRPRA AGEING SYMPOSIUM ... 790
EUROPEAN TECHNOLOGY REVIEW ... 792
SAFETY AT SOUTHPORT ... 794
PLASTICS MACHINERY DEVELOPMENTS ... 801

Features

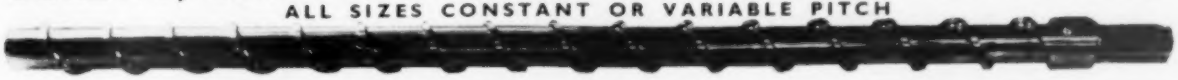
VIEWS AND REVIEWS ... 796
MEN AND MATTERS ... 798
THE LEGAL ANGLE ... 800
PLASTICS STATISTICS ... 803
RUBBER STATISTICS ... 803
PLANTATION NEWSLETTER ... 804
RUBBER AND PLASTICS STOCK MARKET ... 805
RUBBER MARKETS ... 806
INDUSTRY INTELLIGENCE ... 807
MATERIAL PRICES ... 808
TRADE MARKS ... 809
NEW COMPANIES ... 809

Classified Advertisements . . . 810 Advertisers Index . . . 814

MACLAREN HOUSE, 131 GREAT SUFFOLK STREET, LONDON, S.E.1
Grams: 'Buns, Souphone, London' Phone: HOP 5712

Annual Subscription, including Postage: United Kingdom and Oversea, £2 15s.; Index (half-yearly), 10s. per annum extra. Published weekly. Registered at GPO as a Newspaper. Registered for Transmission by Canadian Magazine Post. Entered as Second Class matter at Post Office, Boston, Mass. USA, under the Act of March 3 1879 (Sec. 397 P. L. and R.)

SCREWS, BARRELS & LINERS FOR PLASTIC EXTRUDERS
ALL SIZES CONSTANT OR VARIABLE PITCH



Also manufacturers of

SPIRAL MARKING MACHINES
FOR PLASTIC CABLE IDENTIFICATION

BUNCHING & TWINNING MACHINES
STRANDING MACHINES
PAPER LAPPING MACHINES
PAY OFF & TAKE UP STANDS

JOHN DOCKER & CO. (ENGINEERS) LTD.
CROMWELL WORKS, NORTH FELTHAM TRADING ESTATE, FELTHAM, MIDDLESEX. TEL: FELTHAM 6341
GRAMS: DOCREBUILT, FELTHAM
CABLES: DOCREBUILT, LONDON

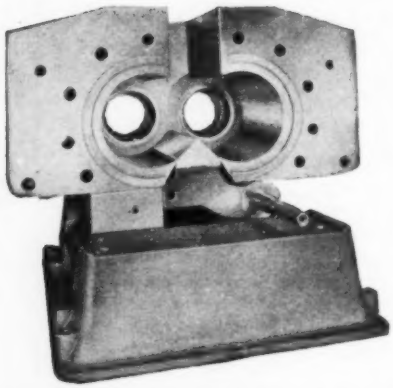
NEW BANBURY* DROP DOOR DELIVERS 3 BIG BENEFITS

- **leakage prevention**
- **shorter cycles**
- **almost instantaneous discharge**

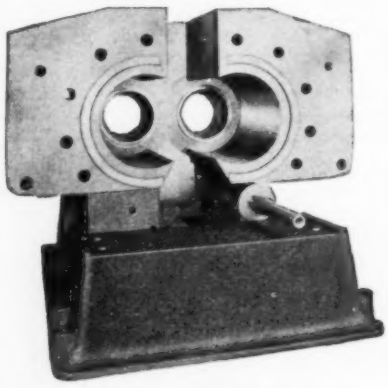
Here's a new development in Banbury mixer design: the hydraulically operated drop-door . . . now available as an optional feature on all new production-size machines. The drop-door design does away with a source of leakage and contamination which cannot be avoided in sliding-door design. Clearances which permit some leakage are required for sliding action which is not the case with the drop-door. The new door is hinged, and the surfaces of the door edge and the bottom of the mixing chamber are tapered so that a good line of contact is obtained. The door is leakproof throughout a full period of normal wear and there are no tailings left to contaminate a succeeding batch. The new door has been clocked as low as eight seconds for opening, discharge and closing—more than twice as fast as a sliding door. As a result, the overall mixing cycle is reduced. And, in short-cycle operation, discharge time is in better balance with actual mixing time.

Faster discharge, besides cutting cycle time, is particularly advantageous when formulas require almost instantaneous discharge after pre-determined temperature is reached. With some, a few seconds lag will permit the stock to set up in the mixing chamber.

* ***Banbury is a registered trade mark in many countries throughout the world***

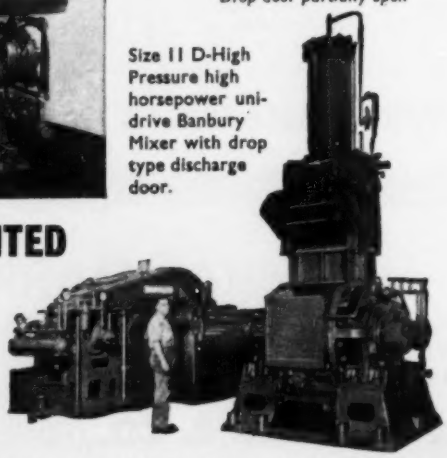


Chamber of Banbury with drop door in closed position



Drop door partially open

Angular view of drop door in open position



Size 11 D-High Pressure high horsepower uni-drive Banbury Mixer with drop type discharge door.

DAVID BRIDGE & COMPANY LIMITED

(In technical association with Farrel-Birmingham Co. Inc. U.S.A.)

BRIDGE

CASTLETON, ROCHDALE, LANCASHIRE

Telephone: Castleton Rochdale 57216
Telegrams: Coupling Phone Castleton, Lancs.

London Office: 6, 7, 8, Sackville Street, Piccadilly, W.1. Tel: Regent 7480. Grams & Cables: Ederaceo, London, W.1

NOTES of the WEEK

The Stockpile Dilemma

THE UK and US Governments have been in a difficult position over their strategic stockpiles. Up to last week the remarkably steady price of natural for the past 12 months had reduced stockpile sales to a mere dribble. Sales during this period from the UK stockpile amounted to only 4,500 tons, compared with the 67,000 tons disposed of in the first year's selling.

Before last week's decision to unload some of the stockpiled rubber, the selling agencies of the UK and the US governments, like unhappy winter bathers, had been dabbling their toes in the water for a good many months. It was all very well waiting for the rise, but would the rise ever come? Clearly there has been much heart searching. In a year's time polybutadiene and polyisoprene — the so-called synthetic naturals — will be moving out of the development stage. The first UK stereo rubber plant will be within a few months of going on stream. If the price of natural plods along on its medium course through 1962, the UK and US Governments must have argued: isn't it better to offload now? Can we take the risk of waiting a year, when the combination of the developed new synthetics and no limit stockpile sales might have a really crippling effect on the market?

Megaton on Malaya

THIS having been said, the two Governments can take no credit for the way they have handled the situation. The Malayan Government has compared the decision as akin to 'the dropping of a megaton bomb' among the world's rubber-producing countries, which makes one wonder what to make of a remark by a State Department spokesman in Washington that the interim procedures 'were decided on after prolonged consideration and after consultation with Governments having a substantial interest in the matter'. How much consultation?

Difficult as the position of the US and UK Governments has been we feel that there has not been enough consultation with the rubber-producing countries, and also that the releases decided on are too high. Within a year the new interim procedures could lead to a release from both stockpiles of 72,000 tons — equivalent to about one-third of the natural imports of the UK. The move had to come; but it could have been more carefully judged and better prepared for.

Rubber is part of the politics of South East Asia, and the political consequences of the move cannot be ignored. Eighty per cent. of the world's natural comes from this area and as one brokerage firm in Singapore pointed out this week, the surest way to antagonize and embitter the inhabitants was to depress the prices of their primary commodities by a means directly attributable to Government action. In fact, the firm considered that the action taken by the Board of Trade and GSA could be considered the 'biggest political blunder in South East Asia for many years — and one that any amount of foreign aid could not wipe out'.

Eastern Bloc Moves

IT is interesting to compare this 'political blunder' with moves being made by the Eastern Bloc in Ceylon. There the free market for Ceylon's sheet rubber has been suspended until the end of 1962, following the conclusion of two contracts by Ceylon with Poland and China. The contract with Poland is for 6,500 tons of sheet next year at a price 5 cents above the average Singapore price calculated on a weekly basis. The contract with China allows for 31,000 tons of rubber in return for 200,000 tons of Chinese rice. Ceylon's Department of Commodity Purchase is also said to be making negotiations with USSR and other Eastern Bloc countries.

So, while Singapore is looking gloomily at a price chart which, as a result of the West's stockpile releases is down to its lowest point since July, 1958, commercial circles in Ceylon are expressing satisfaction at the fact that a ready market has been found for the whole of Ceylon's output till the end of next year.

Learning to Lecture

THE number of conferences, lectures and symposia which the technologist must attend in order to keep abreast of developments is ever increasing. Such functions not infrequently take place in comfortable, air-conditioned lecture theatres — often in semi-darkness. However interesting the subject matter of the speaker the soporific effect of monotonous delivery is almost irresistible. The well delivered lecture is, unfortunately, the exception rather than the rule and more thought devoted to presentation would certainly pay dividends. It is also important to remember that while the lecturer is well aware of the scope and purpose of the work which he is describing, his audience is often not in the same happy position. A few moments spent at the beginning of the lecture in setting the scene will enable the listeners better to realize how the information gleaned may be utilized. Last but by no means least, if slides are to be used, it does help if the fellow at the back — who is almost asleep anyway — can read them.

NEWS *Briefs*

BFG LOUISVILLE ABS FACILITY IS COMPLETED
PETROBAS SBR SOON — FIRESTONE OHTSU LINK
LIGHTNIN IN FRANCE — SEMPERIT EXPANSION

●**France** — Lightnin Mixers Ltd. of Poynton, Cheshire, specialists in fluid mixing and agitation machinery, and formed just a year ago, has set up a French subsidiary. Known as Lightnin Mixers (France) SA, the new company has headquarters in Paris and will be responsible for sales of the complete range of Lightnin Mixers equipment throughout France.

●**Indonesia** — More than 50,000 acres of Indonesian rubber land have been replanted with new high-yielding seedlings so far this year, the Agricultural Department reports. Indonesian rubber production has been falling behind that of Malaya and other countries because of the preponderance of old trees. The 1961 replanting target for estates of 36,000 acres had already been reached, the Department said, and more than 14,000 acres had been replanted by smallholders, from whom nothing had been expected. It was hoped that between now and 1969 estates would continue replanting at the current rate, while it was hoped that smallholder replanting would rise to 48,000 acres a year.

●**Ivory Coast** — The Ivory Coast's first latex factory, at the Eleis plantations, Bingerville, some 20 kilometres from Abidjan, has been opened by Charles Donwahi, Ivory Coast Minister of Agriculture and Co-operation. It is producing between 1½ and 2 tons of latex per day. A second latex plant is planned to be erected in Pakidie, near Dabou, about 60 kilometres from Abidjan. It will open in 1964 and have a production capacity of 3,700 tons per year, according to the Compagnie des Coutchoucs de Pakidie, owners of the installation.

●**Mexico** — A three-year trade agreement between Mexico and Indonesia has been signed in Mexico City with the object of increasing trade between the two countries. Under the terms Mexican imports from Indonesia will include rubber.

●**United States** — B. F. Goodrich Chemical Co. has completed an ABS plant at its Louisville, Kentucky, 120-acre plastics and synthetic rubber complex. BFG Chemical, which together with its overseas associate companies is the largest producer of vinyl plastics resins in the world, entered the ABS field in August 1960 with the completion of an ABS facility at Akron. The capacity of the Louisville installation is not revealed, but it is said to be 'substantially greater' than the Akron plant. Four grades are to be produced.

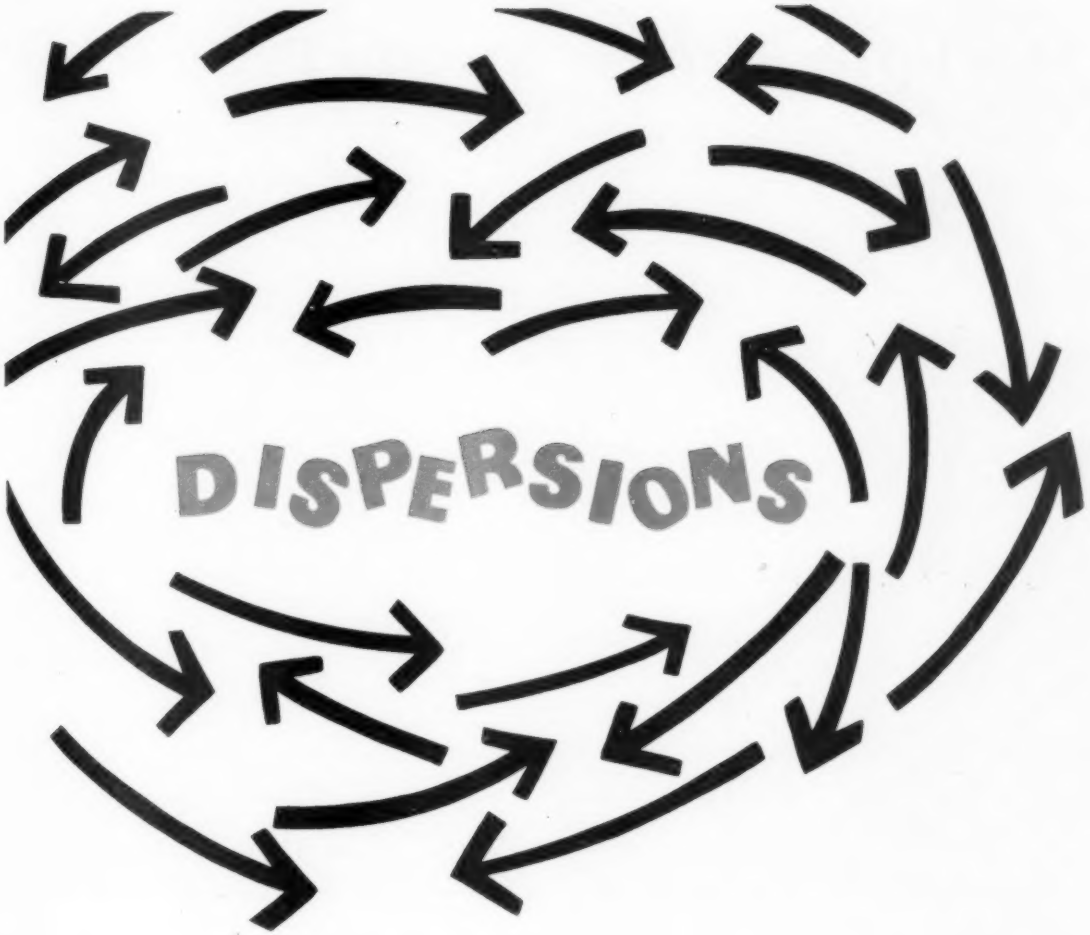
●**West Germany** — Semperit Gummiwaren GmbH, the West German subsidiary of Semperit Oesterreichisch-Amerikanische Gummiwerke AG of Vienna, is reported to be expanding its German production plant at Deggendorf, near Munich. Extensions to the existing factory, costing about 3m. marks, are now in progress and should be completed by the end of this year. The company produces mainly rubber goods for industrial uses and the expansion is said to be due to the strengthening of production and sales in the European Common Market.

●**Brazil** — Petrobas, the Brazilian state monopoly petroleum company, expects to begin marketing synthetic latex and SBR from its new $28m. plant by late December or early January. The plant is situated at Caxias near the Duque de Caxias petroleum refinery. Building is taking place in two stages, first the copolymerization units, which will use imported raw materials, and secondly the installations to produce styrene and butadiene with the aid of by-products from the refinery. Capacity of the plant will be 40,000 metric tons per year and the expected annual saving in foreign currency arising from home production will be in the neighbourhood of $9m.

●**Japan** — The Firestone Tire and Rubber Co. plans to produce tyres in Osaka, Japan, in co-operation with the Ohtsu Rubber Industry Co. Ltd. Under an agreement signed by the two companies, Firestone will provide technical information and assistance and share its knowledge of new developments with Ohtsu. Both Firestone tyres and the brand manufactured by Ohtsu will be produced in the plant, and Firestone will set up a sales organization to market its products in Japan.

●**S. Africa** — Polythene is to be produced at Sasolburg by African Explosives and Chemical Industries, in a co-operative arrangement with the State-sponsored Sasol Corporation. The factory, the first to produce polythene in Africa, will cost R5m. and output is expected eventually to reach more than R4m. a year in value. The saving in imports which is expected to result from the new project and from the production of pvc, already being made by the same company, is estimated at R14m. a year.

'— sixty-six, a sticky mix — number nine, the Banbury's fine — eighty-four, see Francis Shaw' — 562



Simplify your latex compounding technique by using Anchor's complete vulcanising dispersions which may be added direct to latex. Accelerators, antioxidants, sulphur, zinc oxide and colours are available as composite and also single dispersions of maximum fineness and stability. Also available is a full range of latex compounding ingredients.

ANCHOR CHEMICAL COMPANY LTD — MANCHESTER 11

London Office: Grand Buildings, Trafalgar Square, W.C.2.
Scottish Agents: J. & G. Hardie & Co. Ltd., 178 Fulton Street, Glasgow, W.3.
American Liaison and Service Branch: British Anchor Chemical Corporation, 366 Madison Avenue, New York 17, N.Y.

Stockpile Moves: Strong Protests

LIKE 'MEGATON BOMB' DROPPED ON RUBBER PRODUCING COUNTRIES

PROTESTS from the Malayan Government and various organizations followed the United States decision to revise the selling structure of its stockpile rubber. The American move — under it rubber can be sold below 32 cents a lb. up to a maximum of 5,000 tons a month — followed a similar action by the UK Board of Trade (*RPW* November 4, 748).

The Malayan Government compared the United States decision as akin to 'the dropping of a megaton bomb' among the world's rubber producing countries.

Inche Johari, Minister of Commerce and Industry, said in a prepared statement that the Malayan Government regarded the action of the US General Services Administration as 'destructive of the stability and economic well-being of the natural rubber-producing countries'.

The Malayan Government could not but regard this action by the US Government as a move designed to keep the price of natural rubber at an artificially low level.

Economic Aggression

He declared this was 'tantamount to economic aggression of the underdeveloped countries'.

'Malaya is the world's largest producer of natural rubber', he said. 'Any action which has the effect of disrupting the international rubber market is of great concern, particularly in the light of Malaya's second five-year plan'.

Malaya's second five-year plan involves an outlay of M$1,050m. geared to a rubber price of 38 US cents per lb. The plan began in January this year and is scheduled to be completed in December 1965. Its aim is the end of rural poverty by boosting the earnings of smallholders in rubber with increased production.

Inche Johari said later that since his statement he had received a note from the US Government saying that it 'intended to continue to exercise care and circumspection in sales of rubber from its stockpile'.

Injury to Country

The note added, according to the Minister, that if Malaya thought the stockpile sales were causing 'economic injury' to the country, then the US 'would be prepared to consult with the Malayan Government and give serious consideration to its views'.

The Malayan Rubber Producers' Council, the Estate Owners' Association, the Federation of Rubber Trade Associations and the Council of Malayan Smallholders, all issued statements attacking GSA's decision.

The Smallholders Associations' Council also attacked Britain for disturbing its stockpile price agreement.

The US reaction to all this was put by the State Department which said it believed that the US decision would further the mutual interests of the rubber-producing countries as well as of the USA.

A Department spokesman, Lincoln White, said the interim procedures for the disposal of stockpile rubber 'were decided on after prolonged consideration and after consultation with Governments having a substantial interest in the matter'.

He added: 'It has been and still is our opinion that the interim procedures are such as to further the mutual and aggregate interests of the rubber-producing countries as well as of the USA'.

Full GSA Text

The full text of the GSA announcement of a new one-year programme for selling natural rubber from the national stockpile is as follows:

'The General Services Administration has announced a revision in the programme for disposal of excess crude natural rubber from the national stockpile to be effective November 2 1961. The revision was made at the direction of the Office of Emergency Planning.

'The graduated scale of quantity limits and prices in effect since the programme was undertaken in the autumn of 1959, has been rescinded. In its place, a revised interim procedure will be in effect for a limited period of time, after which it is intended to adopt a new graduated scale of prices and quantities.

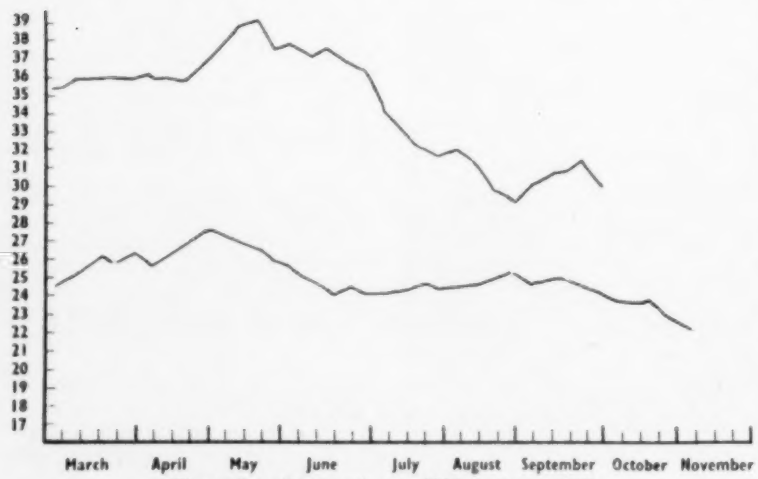
'Under the interim measure, sales of excess rubber from the stockpile will be limited to a maximum of 5,000 long tons per month when the contract prices received are below 32 cents per lb. There will be no maximum quantity restrictions on sales when contract prices received are 32 cents per lb. and above. When total sales at contract prices below 28 cents per lb. have amounted to 15,000 long tons the interim disposal procedures will be re-examined. Should a re-examination not result in a change, the interim procedure will remain in effect for approximately one year.

'GSA will continue to sell bareback ribbed smoked sheets at market price less $\frac{3}{8}$ cents per lb. to compensate for age, extra handling, thawing, etc.

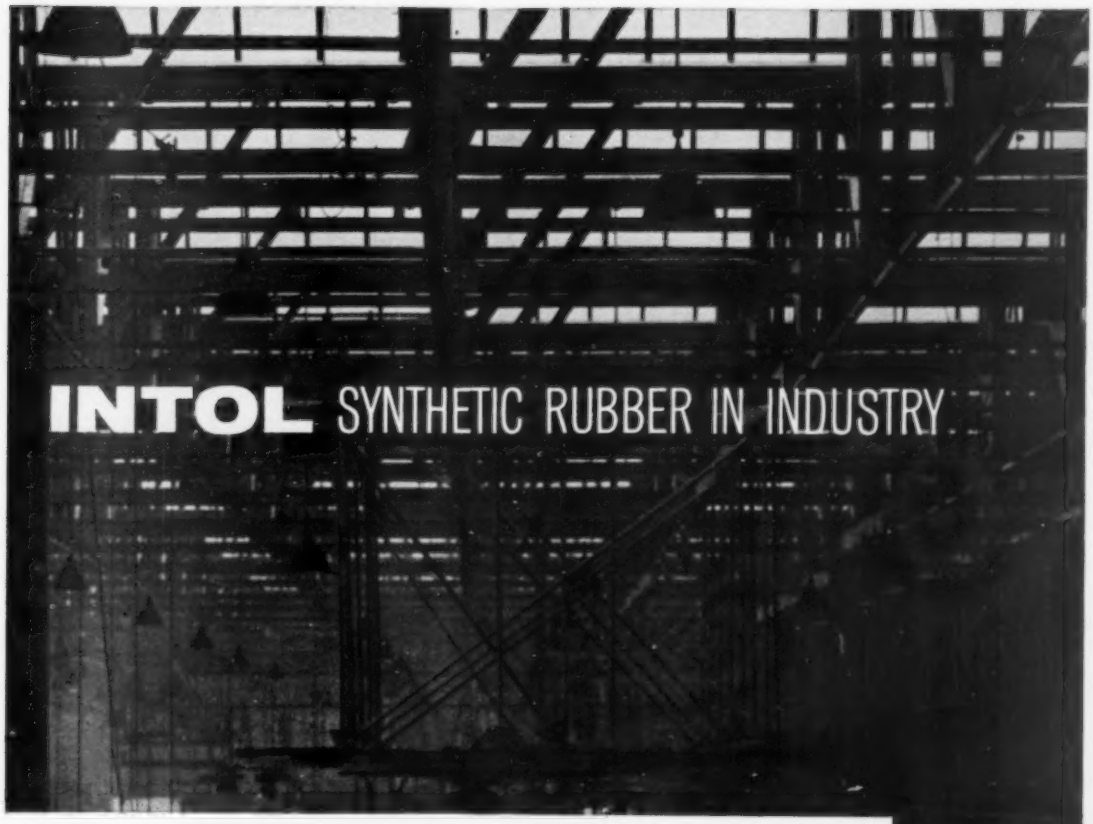
'As of October 31 1961, the Agency has sold 119,293 long tons of the excess rubber since the current disposal plan went into effect on October 16 1959, and had 342,447 long tons remaining to sell'.

On October 31 following the UK Board of Trade's temporary suspension of price restrictions, 255 tons of rubber were sold, for delivery, as follows: November 200 tons; January 1962, 55 tons.

The Stockpile Dilemma: 785.



The price of natural: top 1960, bottom 1961



INTOL in industry — in factories, warehouses, mills. In floors, on walls, in doors, on ceilings. INTOL in tyres, INTOL in toys, INTOL in buses, INTOL in bedding. INTOL in every industry, working in industry, being worked by industry. New applications for INTOL are being found daily, by manufacturers and by I.S.R.'s Technical Service. This is a service to all manufacturers; it tests and compiles its findings into useful reports, it supplies valuable compounding and processing data, it comes to you and it costs nothing. INTOL is sold from stock at stable prices. INTOL and INTEX—an embracing range of S.B. solid rubbers and latices.

The International Synthetic Rubber Company Ltd.
Southampton · Telephone: Blackfield 3141 · Cables: INTOL HYTHE
London · Telephone: Langham 0711 · Cables: INTOLRUB LONDON
Manchester · Phone: Pyramid 1241 · Cables: INTOL MANCHESTER

NRPRA Ageing Symposium

INTERPLAY OF CHEMICAL AND PHYSICAL PHENOMENA

A SYMPOSIUM on fundamental and practical approaches to ageing protection, held at the laboratories of the Natural Rubber Producers' Research Association at Welwyn Garden City on November 2 and 3, was attended by over 60 scientists and technologists.

Opening the proceedings, Dr L. Bateman, Director of Research, said that in the series of NRPRA Symposia the aim was to select some broad field of their research and allied activities and to outline the several ways in which the problems presented were being tackled.

The ageing of rubbers, he said, reflected an intricate interplay of chemical and physical phenomena which were manifest not only under ageing conditions as commonly understood but were involved more widely in the failure processes of tearing, fatigue and abrasion. Attention to either the chemical or physical aspects without full regard to the other could yield no more than a superficial understanding of these processes. He hoped that the symposium would show that while the gap between science and technology remained large in this field, new scientific findings could be effectively applied to achieve significant technical advances.

A report on the lectures presented at the symposium, the titles of which are given below, will be printed in a future edition of *RPW*.

Fundamental approach to study of ageing, by J. I. Cunneen; ageing characteristics of different vulcanizates, by J. R. Dunn; developments in the use of vulcanization activators for latex systems to give: (a) high temperature resistance; (b) elimination of copper staining, by M. W. Philpott; flame resistant natural rubber latex compounds, by T. D. Pendle and E. Pole; protection of natural rubber compounds against ozone cracking, by L. Mullins; some factors influencing creep and fatigue, by A. G. Thomas.

Dr L. Bateman (*right*), **Director of Research, with two of the lecturers at the Natural Rubber Producers' Research Association symposium on ageing — Dr L. Mullins** (*left*) **and Dr J. I. Cunneen**

£170,000 Polymer Contracts for AEI

ORDERS totalling £170,000 in value, for equipment to be used in the polymer industry, have been placed with the Motor and Control Gear Division of Associated Electrical Industries Ltd.

For Fawley Butyl Plant

One of these, from Foster Wheeler and Co. Ltd., is for 120 electric motors ranging from ½hp to 4,000hp, together with high- and low-tension switchgear. The equipment is for installation at the new butyl rubber plant to be built at the Esso Refinery, Fawley.

Another contract, from David Bridge and Co. Ltd., calls for electric motors, generators and control equipment for a nine-section machine for making vinyl asbestos floor tiles. The tiles are manufactured by J. Williamson and Co. Ltd., Lancaster. For production purposes only eight of the sections are required at a time so that one section of the nine is free for adjustment and routine maintenance.

Another 82 motors have been ordered by constructors John Brown Ltd. to assist in doubling the capacity of the I.C.I. polypropylene plant at Wilton. Last year the AEI Motor and Control Gear Division supplied the original 150 motors for this installation.

Laporte Producing ESB Oil

Laporte Chemicals Ltd. has added epoxy soya bean oil to its range of products currently sold to the plastics industry. Production of the oil, the company says, 'is a logical extension into the important and rapidly extending field of pvc applications'.

Epoxy soya bean oil exerts a strong synergistic effect when used in combination with many metallic stearate type stabilizers and permits the use of aluminium and zinc compounds in non-toxic stabilizer systems.

It is an efficient stabilizer in its own right and Laporte says that its widespread acceptance as a plasticizer seems likely in view of its extremely low volatility, diminished tendency to migration and high resistance to extraction by solvents, oils, fats and aqueous solutions of soaps and detergents. It will react with organic acids and each epoxide group may yield a diester. The use of such oils in alkyd manufacture can yield products with pronounced gelling properties at relatively low temperatures.

Polythene Anti-dumping Move Urged

The Board of Trade has now received a formal application from I.C.I. asking it to introduce anti-dumping legislation against cheap imports of foreign polythene.

Other UK firms may follow suit.

I.C.I.'s efforts against dumping before the application involved it cutting back the price to 1s. 6d. a lb. Out of a UK production of around 145,000 tons of polythene, I.C.I. manufactures 105,000 tons.

Work Starts on Sarnia PB Plant

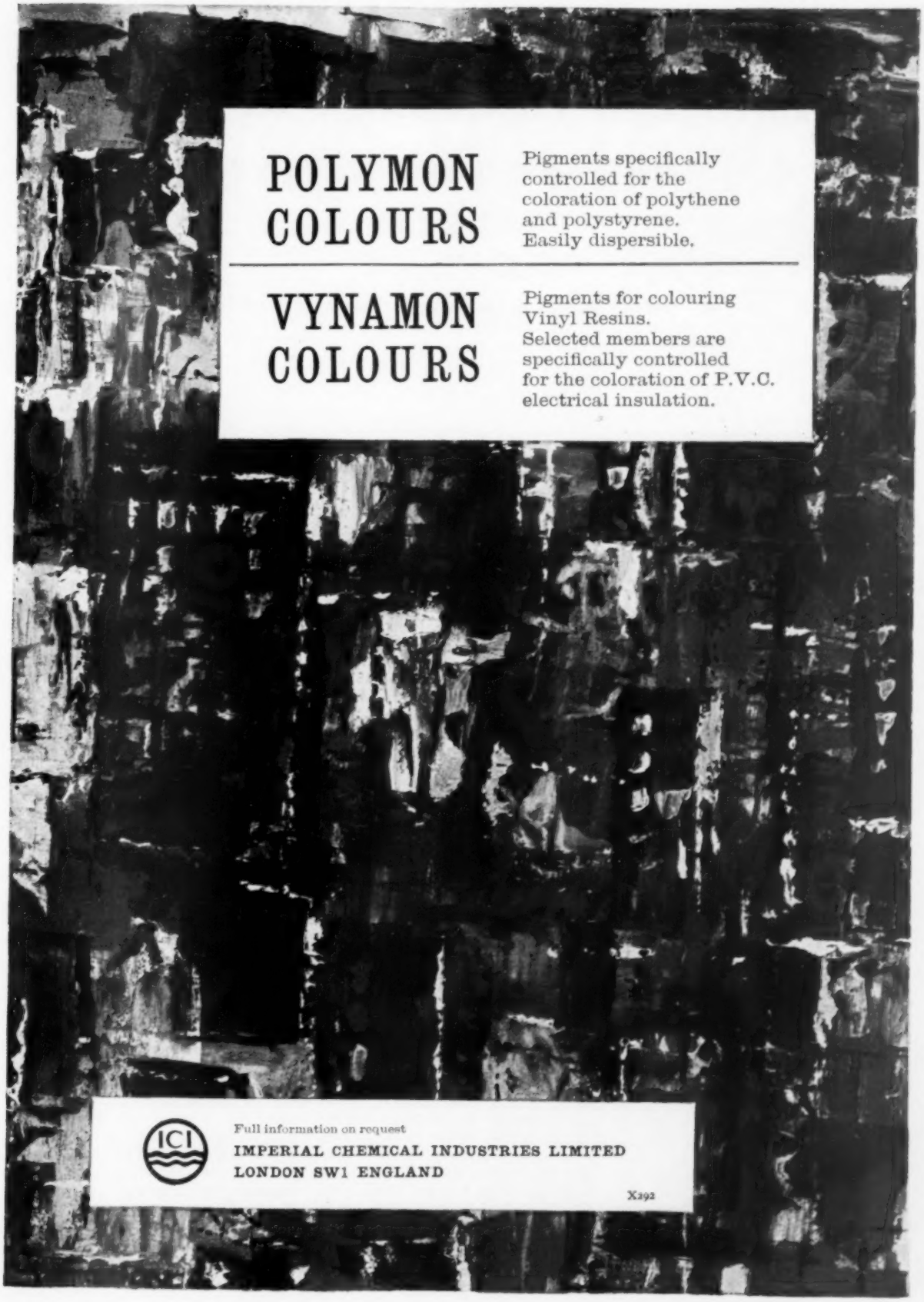
The first sod has been turned at the site of Polymer Corporation's new polybutadiene plant at Sarnia, Ontario, by the Defence Minister, Raymond O'Hurley.

The plant will have a capacity of 20,000 tons a year by late 1962. Cost of the extension is $8m. Catalytic Construction of Canada is the contractor.

The Minister pointed out that this is the fourth major Polymer project started at Sarnia this year. The others are: facilities for the production of black masterbatch, a new butadiene extraction unit, and a new marketing building.

Glycol Ether Reduced

The Chemicals Division of Union Carbide Ltd. has announced a general price reduction of £10 a ton for its glycol ether solvents.


POLYMON COLOURS
Pigments specifically controlled for the coloration of polythene and polystyrene. Easily dispersible.
VYNAMON COLOURS
Pigments for colouring Vinyl Resins. Selected members are specifically controlled for the coloration of P.V.C. electrical insulation.
ICI
Full information on request
IMPERIAL CHEMICAL INDUSTRIES LIMITED
LONDON SW1 ENGLAND
X292

A monthly review of important papers on polymers published in the European technical press

European Technology Review

PAPERS ON SCORCH — VULCANIZATION RATE — EBONITE COMPOUNDING

By S. H. MORRELL and R. J. MOSELEY,
Rubber and Plastics Research Association of Great Britain

THE measurement of scorch and its relation to processing safety is a fruitful subject for discussion and speculation. A paper[1] by workers at the Russian Institute for the Tyre Industry discussed the various methods of measurement and compared them among themselves and with the change in plasticity of a number of stocks whilst these were being worked on the mill at 120°C.

Instruments compared included the Williams compression plastimeter (with various methods of heating the specimens), the Goodrich compression plastimeter, the Firestone extrusion plastimeter, the Mooney shear plastimeter, and the Kanavets shear plastimeter. The latter instrument, which was described[2] some six years ago, may be regarded as a Mooney turned inside-out, in which the rubber is sheared between a stationary core and the walls of a rotating chamber.

The results, which are given in the accompanying table, showed quite clearly the superiority of the shear plastimeters in assessing tendency to scorch on the mill. The authors emphasized that only in a shear plastimeter does the compound receive basically the same treatment as on a mill, namely, transference of heat from metal surfaces and continuous deformation during the heating period.

Measurement	*Time to scorch (min.) of compound* 1	2	3	4	5	6	7	8
Conventional scorch determination								
Williams, after heating in press ..	12	14	13	21	34	—	—	—
Williams, after heating in oven ..	58	54	100	78	—	44	43	36
Goodrich	11	16	23	16	15	11	13	16
Firestone	More than 60 min.					30	50	>60
Mooney	22	28	47	46	33	14	23	20
Kanavets	15	18	42	37	—	15	15	20
Measurement of plasticity during processing								
Mooney	15	28	40	45	30	12	25	15
Defo	20	30	—	50	30	15-20	25	10-15
Williams	15-20	30	40-50	50	30-40	15-20	20	10-15

Experiments with an Extrusion Plastimeter

From the same Institute comes another paper[3] on scorch. B. A. Dogadkin and his collaborators have investigated the scorching tendencies of black compounds, paying careful attention to the formation of carbon black gel and its effect on the flow properties of the compound up to the onset of vulcanization. These workers used an extrusion plastimeter designed by the Research Institute for the Tyre Industry in which the compound was heated for 7min. and then extruded through a narrow orifice at constant pressure, the weights of extrudate during successive periods of 2min. being measured. The combined sulphur and the benzene solubility of the products were also determined.

With unfilled SBR compounds, the weight of extrudate passed during 2min. increased slightly at first and then decreased to zero, whilst at the same time the amount of combined sulphur increased. The products were completely soluble in benzene until vulcanization had reached the stage where further flow through the plastimeter did not occur.

A number of carbon blacks of varying types was used, including some experimental variations. Using an SBR compound accelerated with diethylbenzthiazyl sulphenamide and MBTS, it was found that the more alkaline the black the faster did the sulphur react with rubber and the shorter the scorch time. Further, uncured stocks with channel black were found to have a small initial content of bound sulphur due to combination with the black or the rubber during mill mixing. Scorch occurred when the combined sulphur reached a level of 0.4 to 0.5% with compounds containing the more alkaline blacks, but with channel black this occurred at a rather lower level. All dissolved in benzene until scorch occurred, but compounds containing channel black were partly insoluble even before heating. This latter behaviour of channel black was also noticed in simple SBR rubber-black compositions without vulcanizing ingredients. Similar results were obtained with natural rubber.

The authors concluded that the retarding action of acidic blacks was due to a decrease of activity of the carbon black surface as well as to the effect of the presence of carboxyl groups on the surface of the particles. The amount of rubber-black gel which was found during milling was not altered by heating the stocks at 120°C., but a lower amount of combined sulphur was required to cause scorch, since both rubber-sulphur and rubber-black linkages prevented flow.

Rate of Vulcanization

At the present time it is accepted practice to carry out measurements of a physical property during vulcanization. F. W. Schränkler[4] described the determination of some electrical properties in this way. The compound was made the dielectric of a condenser and the power factor determined during cure. This gave information on the changes in the polar constituents, whilst the change in resistivity followed the course of the accelerator reactions.

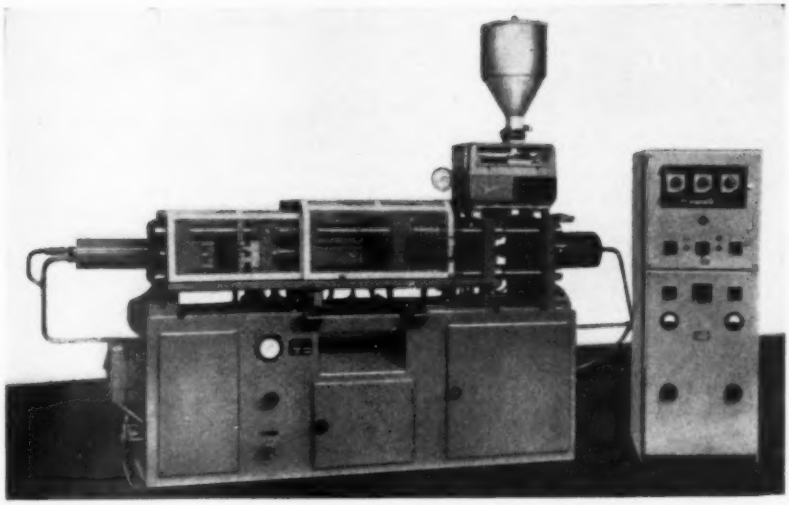
It was found that the reaction of oxygen with the double loads took place in stages, the duration of which increased as cure proceeded. In compounds vulcanized by TMT, double bond scission was followed by addition of zinc dimethyldithiocarbamate to the rubber hydrocarbon radicals, and then part of this split off again.

The zinc dimethyldithiocarbamate formation was not influenced by the amount of accelerator or oxygen originally present, but it was increased by storage of the stocks before vulcanization and by increased amounts of filler. When it had reached the maximum value, it then began to combine still more with the hydrocarbon chains.

The author concluded that a complex zinc salt was formed during the vulcanization reaction, and this decomposed to give a sulphur-containing cross-link. Where light-coloured fillers were present, these caused an orientation of the polymer

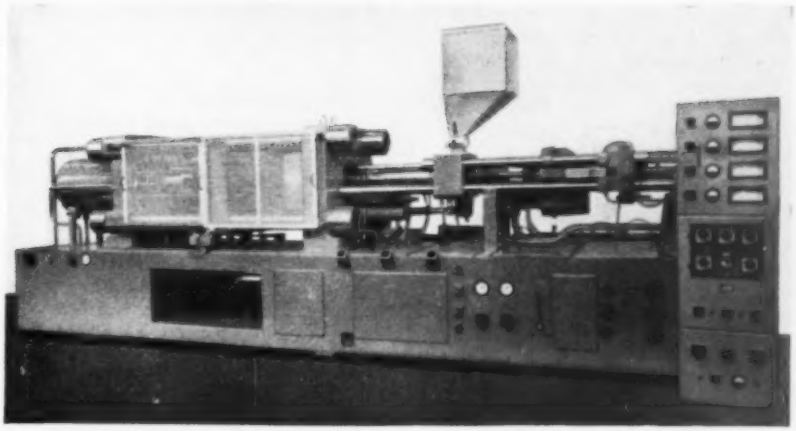
Continued on page 794

ENGEL INJECTION MOULDING *Machines*



ESMA S—45
Quick delivery for all sizes of injection moulding machines, fully automatic or hand controlled.

ESMA—Sch 500/1000
Injection machine with pre-plasticiser for shots up to 67½ cu. ins.



U. K. AGENTS

CCC
COUTINHO, CARO & Co
HAMBURG

FELBER JUCKER & CO. LTD.

FJ MACHINERY

Brooks House, 48 Upper Thames St., London, E.C.4
TELEPHONE CITy 1087
81

Safety at Southport

R. W. LUNN TO OPEN RMEA CONFERENCE

NEARLY 100 rubber safety officers and engineers will gather at Southport on November 15 to attend a safety study conference organized by the Rubber Manufacturing Employers' Association.

Following an informal dinner at the Prince of Wales Hotel, the conference will be opened by R. W. Lunn, chairman of the Leyland and Birmingham Rubber Co. Ltd., and a former chairman of the NJIC Accident Prevention Committee. The inaugural proceedings will terminate with an address by H. Jackson, the present chairman of the accident prevention committee.

The main business sessions of the conference will take place on November 16 and 17, beginning with a symposium on the guarding of rubber machinery arranged by the Engineers' Advisory Committee of the RMEA under the chairmanship of Ernest Morris.

Management Responsibility

'Management Responsibility to Achieve Safe Systems of Work', will be given by Bernard Inshaw, head of the industrial safety division of the Royal Society for the Prevention of Accidents. A. I. S. Debenham will speak on the problem of 'Achieving Operative Co-operation'.

The second day's proceedings will end with a talk on publicity given by J. Campbell Fraser, public relations officer of the Dunlop Rubber Co. Ltd.

'Study of Falling Materials' will form the subject of an important paper to be given on the last day of the Conference by L. V. Green, manager of the work study department at Fort Dunlop.

Fire Prevention — which has been very much in the minds of industrialists recently — will form the closing paper of the Conference and this talk will be given by divisional officer E. A. R. Hibbett of the Surrey Fire Brigade.

Ample time will be allowed at the Conference for questions and discussion both in syndicates and in general meeting and the RMEA states that it is hoped that suggestions will emerge that will be of direct value in solving some of the safety problems of the industry.

On Monday (November 6) the Minister of Labour received a deputation from the TUC on the need for an increase in the number of HM Factory Inspectors. The TUC representatives expressed their concern at the rise in the number of industrial accidents in 1960. They referred to the increase in the work-load of the Factory Inspectorate over the last 30 years, repeated their view that the increase in establishment following the 1956 White Paper was inadequate, and argued the need for workplaces to be inspected more frequently. In view of these factors, they urged that there should now be a substantial increase in the size of the Inspectorate.

KW and Draiswerke

K. W. Chemicals Ltd., of Caroline House, 55/57 High Holborn, London, W.C.1, has been appointed as UK selling concessionnaires for Draiswerke GmbH, of Mannheim/Waldhof, for the sale of this company's machinery.

Draiswerke's range includes specialized mixing and grinding equipment for the rubber and plastics industries.

First Industrial Gloves from Nitrile Latex

A NEW protective rubber glove for industry is now being produced by the Chichester Rubber Co. Ltd., Dunstable. The result of many months research, Chirco-Lon gloves are based upon a nitrile rubber latex supplied by British Geon Ltd., and are the first gloves to be produced commercially from this material.

The gloves are resistant to a wide range of greases, oils, solvents and acids, and in particular can be safely used with hydrocarbons. They have been specially developed to give improved service under conditions in which gloves made from natural rubber and previously used synthetics have a limited life. They also have good insulation properties and can be used for handling solid CO_2.

The protective nitrile outer skin is bonded to a stockinette fabric base. This lining enables the glove to be used with comfort over long periods, without impairing flexibility and sensitivity. The design also allows gloves to be withdrawn without difficulty in an emergency.

Having high tear resistance and tensile strength, the gloves are able to withstand rough usage. Furthermore, it is claimed that these properties are retained over an unusually long period.

EUROPEAN TECHNOLOGY REVIEW

Continued from page 792

chains on their surface and rendered the latter more easily attacked by the oxygen, with the formation of the complex zinc salt.

Ebonite Compounding

Workers at the Rubber Research Institute, Moscow,[2] have recently studied the addition to ebonites of various resins, including pvc, polythene, high styrene resin, polyisobutylene, phenol formaldehyde resins, liquid bakelite resin and bakelite powder.

It was found that polybutadiene ebonites showed higher impact strengths when low loadings of polythene or polyisobutylene were added, while lightly-filled SBR ebonite gave a higher impact strength with a phenol-formaldehyde resin.

Moderately and highly - loaded ebonites of polybutadiene, SBR, methyl styrene rubber and nitrile rubber showed improvement when powdered Bakelite resin was added, giving harder vulcanizates with higher softening temperature and an increased cross-breaking strength. The impact strength was unchanged.

Addition of polythene to polybutadiene or SBR ebonites gave softer products with increased impact strength.

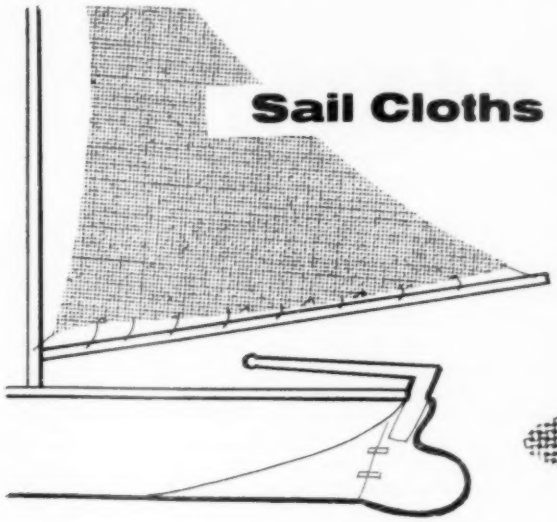
In a number of cases the physical properties of the material remained unchanged when resins were added to ebonite stocks, thus making it possible to reduce the rubber content of the compound.

BIBLIOGRAPHY

[1]A. I. Lukomskaya, M. M. Reznikovskii, P. N. Orlovskii and A. F. Stukalova, *Trudy N.I.I.Sh. P.*, 1960, Sb. 7, 154; RAPRA translation 916.
[2]I. F. Kanavets, *Inf. Sbornik Akad. Nauk SSSR*, 1956; RAPRA translation 767.
[3]B. A. Dogadkin, A. V. Dobromyslova, O. N. Belyatakaya and T. A. Gyul'-Nazaova, *Vys. Soed.*, 1961, **3** (4), 497-504; RAPRA translation 917.
[4]F. W. Schränkler, *Kautsch. u. Gummi*, 1941, **14** (3), WT 61-68, 70.
[5]R. F. Abashina, E. B. Gridunova and A. V. Lysenko, *Trudy N.I.I.R.P.*, 1960, Sb. 7, 52; RAPRA translation 920.

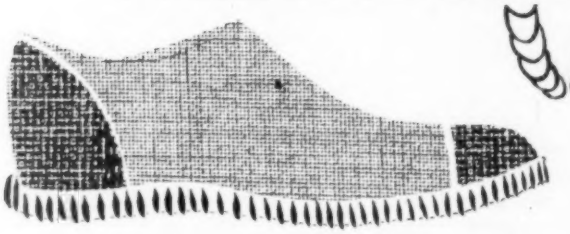
Transport Problems

'Scottish Transport Problems' will be dealt with by K. A. Henderson, transport manager (purchasing), Monsanto Chemicals Ltd. at a course for Scottish senior buyers on November 23-24. The course, at the Golden Lion Hotel, Stirling, is being organized by the Purchasing Officers Association.



Sail Cloths

Protective Clothing



Boot & Shoe Materials

Tyre Foundations **Tarpaulin Canvas &**
Sail Cloths **Liner & Wrapper Cloths**
Filter Cloths **Transmission & Conveyor**
Belting Ducks **Hose Fabrics**
Boot & Shoe Materials **Protective Clothing**
Fabrics for Rubberising
Plasticising and Laminating Purposes
Printers' Blanket Wigans

Hay & Robertson

Whatever your fabric requirements or problems consult Hay & Robertson at

St. Margaret's Works, Dunfermline
Telephone: Dunfermline 1
Telegrams: 'HAY' Dunfermline
London Office: 74 Cheapside, E.C.2. Tel: CITY 5901

VIEWS and REVIEWS

Polly Vinnile

WORDS came before writing; writing was developed to record sounds by converting them into visual symbols. The invention of writing was a tremendous intellectual feat, but we still speak before we write.

Nevertheless, of course, writing has influenced speech. It seems very likely that today it is speech which follows writing, if indeed writing itself is not preceded by visual but non-literary symbols, especially in the domain of science.

Writing has added more precision to language, if only by introducing spelling. To utter words vocally you do not need an alphabet, but doubtless writing has tended to standardize speech.

Plastics Speech

I am not about to enter the controversy of polythene versus polyethylene. I am not about to argue that poly should be pronounced not *polly* but *poley*; that choice seems to me a matter of taste — if I may be allowed to mix a metaphor.

I do want to put in a plea for pronouncing 'vinyl' as if it were written *vinnile*, with the accent on the first syllable. We all agree to pronounce it in that way when it forms part of the word 'polyvinylidene': *pollyvinnile-iddeen* we say. So why do we say *vine-ile* or, worse still, *vine'l*? *Pollyvinnile* is easy and logical.

PE and PRC

The code used by J. Lacombe and W. Wrobel in a paper on pp. 1271-8 of *Revue Generale du Caoutchouc*, Vol. 38, No. 9, September 1961, is as follows:

PE=polythene.

PRC=polythene reticulated chemically, that is vulcanized or cross-linked polythene.

They claim that the cross-linking of PE has created a new material which is of outstanding value to the cable-covering industry.

Protecting PRC Insulation

The paper is of particular interest because it shows a way out of a new dilemma, which is that most of the classic antioxidants are also inhibitors of the chemical cross-linking reaction of peroxides on PE.

The organic peroxide used in this investigation was the Vanderbilt 'Varox', a tertiary butyldimethylhexane peroxide.

It is thought that these peroxides break down to atomic oxygen and form bridges at points other than the very few available double bonds in PE, that is to act on the hydrogens at the tertiary carbons.

This is also one of the main points of attack by atmospheric oxygen, so that antioxidants which chemically protect at these points against atmospheric ageing also prevent peroxide cross-linking.

Plastograph Measuring Device

For measuring the speed and degree of cross-linking, in the absence and presence of an antioxidant, the authors decided to use the comparatively simple and rapid method of the Brabender Plastograph, and to calculate from the results the 'energy of disactivation' which is the extra energy needed in the presence of the antioxidant to reach a desired degree of cross-linking.

Certainly, one of the terms in the energy equation, heat, cannot be taken into account by this method but the authors point out that it is extremely small in the conditions of their experiments. Repeats were very good.

This method was used for a preliminary sorting-out of antioxidants. Out of about 20 investigated only four were found to be promising enough, having a low enough energy of disactivation in PE to warrant further experimentation by determining the protecting given against oven-heating. One of this four was soon found to be of little interest because, although it protected, it conferred on PE initial properties which were poor.

The three finally chosen were: zinc mercaptobenzimidazole, 2-2-4 trimethyl -2 dihydroquinoline, and nickel dibutyldithiocarbamate.

Radiochemistry

The science of the chemical effects brought about in matter by the absorption of ionizing radiations is a subject of general interest to chemists — and of growing special interest to polymer technologists.

A book on one aspect of the subject, gases, has recently been published (Chapman and Hall, London, and Reinhold Publishing Corp., New York. 100s.). Written by one of the world authorities, S. C. Lind, with the help of C. J. Hochanadel and J. A. Ghormley, it is entitled *Radiation Chemistry of Gases*.

It is more than just a book. As one of the ACS Monographs, it is rightly called a definite reference on theory, but it is more than that, it is a record of up-to-date experimental data.

The first five chapters consist of introductory material on radiation, ionization, and kinetics, and are followed by ten chapters on the present position of the science in gaseous reactions, including oxidation, hydrogenation, polymerization, mass spectroscopy, etc. Special attention has been paid to the effects of the presence of small proportions of gases foreign to the chief reagents.

There is valuable material here on the effects of radiation on many organic compounds, including hydrocarbons saturated and unsaturated. The chapter on polymerization of gases includes accounts of work on acetylene, cyanogen, hydrogen cyanide, and ethylene, among others.

Process Plant Materials

Another recently-published book of interest to our industry is *Materials Selection for Process Plants* by R. E. Gackenbach (Chapman and Hall, London, and Reinhold Publishing Corp., New York. 68s.).

It may be that some of us will think that the time will come when such a book as this will have one chapter devoted to metals which will include iron and steel and

COMMENT ON SCIENTIFIC AND INDUSTRIAL MATTERS

by **F. C. JENNINGS**

the various alloys, while the other chapters will deal, one after the other, with each of the plastics and the rubbers.

As it is, the chapters on plastics, on rubbers and elastomers, and on paints and coatings, are the longest in the book. Plastics includes phenolics, furanes, epoxies, polyesters, polythene, polypropylene, polycarbonate, fluorocarbons, chlorinated polyether, ABS plastics, polyvinylidene, and, the longest of all, pvc.

Rubber includes natural, SBR, nitrile, butyl, silicone, polysulphide, Hypalon, urethanes, pvc, etc. Many of the plastics and rubbers are further discussed in the chapter on paints and coatings.

Corrosion

The book will be of value to everyone who has interest in the practical side of industry because its main theme is combating corrosion, one of the largest items of industrial cost. Just as it is true that we are dying from the moment we are born, so our plant, equipment, and machinery is breaking down from the time it is made.

Works managers, engineers, chemists, technologists concerned with increasing the life of equipment, reducing shut-down time, getting longer production runs, decreasing maintenance costs, will find this a useful book.

The first 44 pages are concerned with the phenomena of corrosion, protection, and inhibition, the next 156 pages deal with metals, 12 more then deal with brick and cement, and the last 77 with plastics, rubbers and paints. Each chapter gives data in tabular form about the material under discussion.

The author is a materials engineer with American Cyanamid and has conducted extensive testing, both in service and in the laboratory, of metals, paints, plastics, etc., in the corrosive environment of process plants.

Some Sovietisms

The latest issue of *Soviet Rubber Technology*, the RAPRA translation of *Kauchuk i Rezina*, February 1961, Vol. 20, No. 2 (published by Maclaren and Sons Ltd., London) has the usual mixture of items novel and antique.

Rubber-Nylon Fabrics

Can be used for large structures subject to high pressures, though should not be employed at temperatures over 150°C.

Stronger and lighter than rubber-cotton.

Before coating, by any method, dip in a synthetic resin. Aqueous solution of an epoxyamine found to be best.

Rate of wetting of nylon being slower than that of cotton, slightly slower rates of coating are desirable.

Dry the fabric before calendering and use somewhat higher calendering temperatures.

Light is main cause of failure during natural ageing, so protect exposed fabric with rubber layer.

Carbon Black Manufacture

Highly aromatic hydrocarbon oils are widely used as raw materials for furnace blacks. To attempt to characterize such oils by factors derived from structural group analysis is, to say the least, inconvenient because of the many indices which would be required. A new complex is here proposed, the Aromatics Factor A, which is the product of the total number of aromatic (and naphthenic) groups and the content of aromatic carbon.

The paper (pp. 31-34) shows that an increase in this factor produces an increase in yield, in specific surface, and in oil absorption.

Cutting Circles from Sheet

The first, astonishing paragraph of the paper on pp. 44-47, reads thus: 'In cutting round or ring-shaped parts from flat vulcanized sheet rubber, or uncured blanks of similar shape from sheet, no preliminary analysis is made to ascertain the most advantageous spacing of the parts or blanks on the sheet. This frequently results in waste of material'.

I'll say it does.

This, from the country which put the first man into space!

A little elementary mathematics enables the author to come to a conclusion about the better of two methods of cutting from a sheet of rubber uniformly sized circles in horizontal and vertical rows. (1) With the centres of the circles at the intersection points of the vertical and horizontal diameters, *i.e.* the centres of each neighbouring four lying at the corners of a square; (2) in a staggered fashion, *i.e.* with the centres of each neighbouring four lying at the corners of a parallelogram.

Method 1 yields the least waste when there are less than four circles in each row, otherwise, at four or more per row, method 2 is the more economical.

Vulcanization

According to a paper on pp. 26-30, furfuramide is a good, cheap activator for MBT, MBTS, or TMTD in natural and most synthetic rubbers.

Could anyone give me further information about the 'new, very efficient method of control-testing the degree of vulcanization by fluorescent analysis' referred to on page 49?

Noted in Passing

Tyres. Production. Hanging mono-rails. Continental Gummi. *Kautschuk und Gummi*, Vol. 14, No. 9/1961, pp. 250-2.

Dielectric properties. Relationships with molecular structure and arrangement. *Plaste und Kautschuk*, Vol. 8, No. 7/1961, pp. 342-7.

Tapping the Rubber Tree (continued). *Revue Generale du Caoutchouc*, Vol. 38, No. 7-8, 1961.

Heels of Ladies' Shoes. Loads on. Heights and shapes. *Der Plastverarbeiter*, Vol, 12, No. 9, pp. 415-9.

Handling Raw Materials Pneumatically — a survey. *Plastics Technology*, Vol. 7, No. 6, pp. 47-51.

CHARLES JENNINGS

MEN and MATTERS

A Review of People and Events

by Peter Richards

SHADES of a bygone age have been evoked during this week, when the 1906 Rolls Royce Silver Ghost, the first to be made, did the journey from London to Edinburgh to commemorate the similar journey it undertook in 1907.

The tyres fitted to the car are Dunlop 895 x 135 beaded edge tyres made to specifications over 50 years old. Although, thanks to the many tyre developments, no new cars have been fitted with beaded edge tyres for over 40 years, there is a small but steady demand for them for replacements for old vehicles still running. Special plant for their manufacture is still working at Fort Dunlop, Birmingham, and is thought to be the only production unit for beaded edge tyres still operating.

They are held on the wheel not by a steel bead wire but by a hard rubber flange which engages in a recess in the rim.

The commemoration run started at the Royal Automobile Club, Pall Mall, on Monday November 6, and finished on Wednesday November 8 at the City Chambers, Edinburgh. The car will go on later to the Scottish Motor Exhibition at Glasgow.

Celebrating the Results

In a draw held at the Tyseley factory of Bakelite Ltd., C. Sadler, a 52-year-old operator in the Warerite production department, won the right to represent the company at the pre-maiden voyage party aboard the new RMS *Transvaal Castle*.

In inviting a representative from Bakelite, the Union-Castle Mail Steamship Co. Ltd. suggested that the choice should be someone below foreman level. The idea of the party is to give workpeople from various industries a chance to see the results of their skill aboard the *Transvaal Castle*. The 33,000-ton liner, which was launched on January 17 1961, is now being completed at Clydebank. The maiden voyage will take place on January 18 1962 from Southampton, and January 11-12 has been selected for the pre-sailing party. The visitors will spend a day and a night on board.

About 3-4,000 sheets of Warerite, in a variety of patterns and colours, are being used in the public rooms, medical centre, toilets, gymnasium and officers' quarters.

Unzipping Cables

Cables can now be zipped up using an ingenious new product made by the Crawley firm Hellermann Ltd.

The product, Helazipp, is a flexible pvc tape with interlocking beading along each edge, which when wrapped round the length of cables will interlock simply by zipping the two sides together.

Made in either black or transparent, Helazipp allows wires to be traced without difficulty, and without having to undo work previously carried out. It can also be used in place of conduit or in certain circumstances as a cover for conduit giving protection from corrosion.

Colin McInnes is the new conveyor belting sales manager of the North British Rubber Co. He joined North British Rubber at the beginning of the year as field sales engineer

Port Jerome Appointments

Raymond J. Pikna has been appointed factory manager of The Firestone Tire and Rubber Co.'s new synthetic rubber plant at Port Jerome, France. Charles H. Hammond has been made production manager.

Both men served until recently in research positions at the Akron headquarters of the company. Mr Pikna was a research engineer and assistant project engineer for the construction of the Diene synthetic rubber plant at the Firestone Petrochemical Centre in Orange, Texas. Mr Hammond was manager of the company's chemical pilot plant.

The new facility at Port Jerome will be completed late this year. It will have an annual capacity of 25m. lb. of Diene rubber and synthetic latex. The International Synthetic Rubber Co. Ltd., of Hythe, is now marketing Diene in the UK.

Blown for Cows

Milking equipment — from troughs to churns up to 140 gallons capacity — can now be blow-moulded in plastics, says Emerson Walker Ltd., specialists in machine tools for blow moulding. A substantial reduction in cost over conventional fabrication techniques and materials is claimed. This prospect has already brought a number of manufacturers of agricultural equipment to Emerson Walker for technical information about blow-moulding machines, their capabilities and production economies.

Apart from dairying equipment there should be many other applications for blow-moulding in the agricultural field. Feed containers, for example, could be produced in different colours for easy identifica-

C. Sadler — lucky winner of a Bakelite draw which will take him to a pre-maiden voyage party on board the *Transvaal Castle* — stripping a Warerite pad after pressing (*see: Celebrating the Results*)

Zinc Oxides

Zincoli indirect

The grades traditionally used by the rubber industry for activation and reinforcement. A full range available, including B.P. and "Chemically Pure" materials for the whitest rubbers.

Amalox direct process

A range of inexpensive low-lead direct process materials in increasing demand. Suitable for all normal applications in the rubber industry.

Zincoid colloidal

A chemically pure extra fine particle size material for specialised usage. The high surface area gives maximum reactivity, and the minimum of pigmentary properties makes this grade most suitable for compounding transparent or translucent rubbers.

AO

AMALGAMATED OXIDES (1939) LTD., DARTFORD, KENT

Sole Distributors:
MORRIS ASHBY LTD.,
10 Philpot Lane, E.C.3 Telephone: MANsion House 8071

tion: blue for oats, red for barley, green for maize, etc. Feeding troughs could be economically blown in plastics, in addition to buckets and containers of all kinds which are so necessary on the farm.

Live Wire Jingle

Old-fashioned ladder — maintenance electrician up it — wet day — didn't bother to switch off juice — very careless — touches wire — bingo! — falls to ground — dead — electrocuted *and* broken neck — widow and five children left destitute — shocking, shocking. Most modern ladder — glass fibre reinforced plastics with polyurethane foam core — developed by American Allsafe Co. using Owens-Corning Fiberglas — very strong — will not absorb moisture — requires very little maintenance — rubber feet to stop slipping at base, another safeguard — capital thing.

Formica Architect

Formica Ltd. announce the appointment to their staff of Roger Burgess, BArch, ARIBA, Chartered Architect and Member of the Institute of Work Study. His primary function will be to advise the company from the architectural and building point of view on the development of new products and applications in the laminate field.

Appointments in Brief

J. A. W. Gill has been appointed a director of Baker Perkins Granbull Ltd., of Kingston-on-Thames. Mr Gill, who is also a director of Steele and Cowlishaw Ltd., of Hanley, remains manager of the chemical machinery sales department of the parent company, Baker Perkins Ltd., of Peterborough.

* * *

Perstorp Products (GB) Ltd. has appointed George E. Patenall as their chief area representative in the Midlands. Mr Patenall was previously divisional manager of the Building and Industrial Division of Rubber Improvement Ltd.

* * *

Cyril Bone, FACCA, has been appointed to the board of Vinyl Products Ltd. — a wholly-owned subsidiary of Reichhold Chemicals Ltd. Mr Bone has been the company's accountant since 1943 and its secretary since 1944 and he will continue to act in these capacities.

* * *

G. E. J. Reynolds has been appointed research manager of Vinyl Products Ltd. He joined the company in 1950 and became assistant research manager in 1957.

* * *

Durapipe and Fittings Ltd. has appointed D. C. B. Chandler as UK sales manager.

Polly Ester Says...

'Multiple bonding — a wife in every port'

THE LEGAL ANGLE

Representing the Company

By a Barrister

SMALL County Court claims are a nuisance and an expense and a client of ours thought he had found a way to contest an action but keep down his costs. He was sued for £50 odd, the price of plastics offcuts supplied. He decided to fight the case for himself, as so little was involved, and put in his own defence. He claimed that he had paid everything that was due to the plaintiffs and that they had made a mistake in their accounts.

When the case came up for hearing, he appeared in person. The plaintiffs' counsel outlined the case against him, and the Judge asked whether he was in court.

'I am here, your Honour', he said.

'But I cannot hear you', replied the Judge, to our client's astonishment. 'You are John Smith and you cannot represent John Smith Ltd. The fact that you are a family firm is quite irrelevant. A company cannot appear in court other than through solicitor or counsel'.

'But your Honour . . . .'

'I am afraid that there are no "buts" about it. A private individual has a right of audience in any court if he sees fit to do without lawyers. But a company has no human existence, apart from its shareholders, so the law is that it can only have a right of audience through its lawyers'.

'I did not know that'.

'Once again, lack of knowledge cannot help you'.

'Can I please have an adjournment, to get a lawyer?'

'I regret that I cannot hear an application from you. You have no right to be heard and I have no power to hear you. I will be bound to treat the matter as if you were not present in court, and if judgment is given against you, you may apply to have it set aside. But I am quite certain that you will have to bear the costs of today. By you, of course, I mean your company'.

The result? The plaintiffs proved their case, obtained their judgment — and by the time Mr Smith got to his lawyer, he was advised that, for the comparatively small sum involved, it would not be worth while attempting to reopen the case. As it was he had to pay the £50 plus the plaintiffs' costs — and even if he got judgment set aside, the costs of the application would be borne by him, and there would be no certainty of his winning.

As for the old saying, then, that 'Any person who is his own lawyer has a fool for a client', that is almost always correct. But when that 'person' is a corporate entity, it *cannot* be its own lawyer, when it comes to appearing in court. Whether you like it or not, your company must be represented by a lawyer, if it wishes to be heard. And we hope that you do like it because, in the long run, clients save money by consulting their solicitors in plenty of time.

PLASTICS MACHINERY DEVELOPMENTS

Foam Production

THE OAKES CONTINUOUS AUTOMATIC MIXER

By JOHN SHEARING

THE production of various foams based on both plastics and elastomers is growing rapidly. The equipment manufacturers have not been slow to react to this and are developing highly specialized machines for the production of high quality foam on a continuous basis.

The old methods of foam production, where air was used as the foaming medium, were often very crude. This resulted in irregular cells and many production problems, not least of which was the difficulty of transporting the foam. The new mixers, which overcome these difficulties are, therefore, of the greatest value to industry since they not only save production costs but give a much higher quality product.

The Oakes Continuous Automatic Mixer is such a product of original design made by E. T. Oakes Ltd., of Macclesfield. This machine has been adopted widely by industry and is used for foams of all kinds based on plastisols and various elastomers and plastics such as polyester foams. The foaming of latex can be very efficiently carried out and the mixers are also used in the food industry and many other industries where 'whipping' is required.

The heart of the Oakes Mixer is the head or mixing chamber. This consists of three parts — the rear stator, the rotor and the front stator. The internal faces of the stators and both faces of the rotor are provided with concentric rows of blades. The two stators are bolted together and appropriately supported, with the rotor mounted on a revolving shaft between the stators. The blades of the rotor mesh with the blades of the stators, with ample clearance between, there being no moving parts in contact.

The products to be mixed enter the mixing head at the centre of the rear stator and flow between the blades of the rear stator and rotor to the outer circumference of the stator cavity. The mixture then flows between the blades of the front stator and rotor to the centre of the front stator, from which point it is discharged. The rotation of the mixing rotor imparts a shearing and mixing action to the mixture which is applied uniformly as the mixture is carried through the mixing head in a swirling path.

In addition to the mixer itself, there is also a blender used particularly for the production of latex foam rubber. This is now supplied with nearly all mixers.

Self-Contained Machine

The mixer is a completely self-contained mixing machine. It consists essentially of a mixing head or chamber, a positive displacement pump to handle the product being mixed and means to introduce air or other gases and liquids into the system for incorporation with the product. Three sizes are available, model 8M, model 10M and model 14M, to fit the requirements of any plant from the smallest to the largest, while a laboratory model 4M1 is available for experimental purposes.

The mixing head and the product pump are both provided with self-contained, variable speed, electric motor power units, which permit wide ranges in speed to fit any production required within the limits of capacity. A tachometer is furnished with each power unit, which indicates the speed of operation at all times and permits accurate speed adjustments. When required for the product for which the mixer is being used, jackets are furnished for the mixing stators, in which water, brine or other refrigerant may be circulated. However, the Oakes Mixer cannot be considered an efficient heat exchanger.

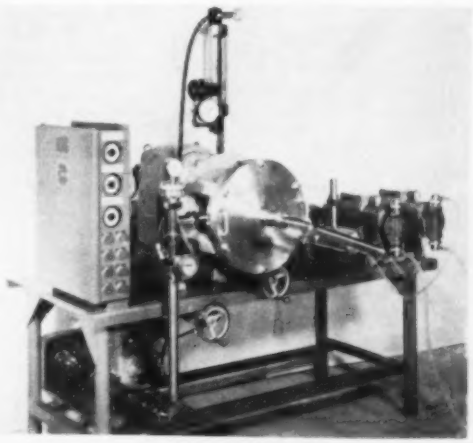
The air flowmeter permits accurate control and adjustment of the quantity of air required under all operating conditions. Magnetic push-button starters with overload and low voltage protection are provided for all electric motors and electrical connexions in conduit are completed on each machine, requiring only one source of power.

Process Features

The construction and operation of the mixer permits continuously accurate metering of latex or paste and air and their introduction into the mixing head. The foam is fed from the mixing head to the blender where dispersions are generally introduced without the possibility of clots of coagulated material forming. The blender is equally effective in dispersing heat sensitive gelling agents and colours in latex foam. Operating the blender in conjunction with the mixer for latex foam rubber production eliminates difficulties caused by the natural tendency of latex to coagulate, and continuous production runs for long periods are, therefore, possible with this combined equipment.

The process is continuous and eliminates waste incident to the batch mixing process where the product may cling to the mixing equipment and must be flushed out after each batch. In addition, the mixer permits injection moulding which produces fully formed articles with minimum rejects as the mould is always filled. Maximum advantage may be taken

Continued on page 804



Completely self-contained, the Oakes mixer makes possible continuous, accurate metering of latex or paste and air and their introduction into the mixing head

NATURAL & SYNTHETIC LATEX COMPOUNDS

Pre-vulcanised Latex

Reclaim Dispersions

Colour Dispersions

Vulcanising Dispersions

Filler Dispersions

RL

RUBBER LATEX LIMITED

HARLING ROAD, WYTHENSHAWE, MANCHESTER 22.

Telephone: Wythenshawe 3226/7/8. Telegrams: Compounds Manchester

London Office: St. Dunstan's House, Idol Lane, E.C.3. Telephone: Mansion House 1005

RL. 57

Selected books on

RUBBER and PLASTICS

ENGINEERING DESIGN with RUBBER

A. R. Payne, B.Sc., A.Inst.P., F.I.R.I. and J. R. Scott, Ph.D., M.Sc., F.R.I.C., F.Inst.P., F.I.R.I.

Rubber and Plastics Research Association of Great Britain

50/-

by post 52/-

SYNTHETIC RUBBER TECHNOLOGY

VOL. 1

W. S. Penn, B.Sc.

50/-

by post 52/-

ANALYSIS of RUBBER and RUBBER-LIKE POLYMERS

William C. Wake, M.Sc., Ph.D. (Lond.), F.R.I.C., F.I.R.I.

Rubber and Plastics Research Association of Great Britain

50/-

by post 52/-

CONDUCTIVE RUBBER

R. H. Norman, M.Sc., A.Inst.P., A.I.R.I.

Rubber and Plastics Research Association of Great Britain

20/-

by post 21/6

PROSPECTUSES ON REQUEST

OBTAINABLE FROM

RUBBER AND PLASTICS WEEKLY

BOOK DEPARTMENT

131 GREAT SUFFOLK STREET, LONDON, S.E.1. *Telephone: HOP 5712*

Plastics Statistics

SEPTEMBER EXPORTS AND IMPORTS

PLASTICS materials exports showed a very slight increase over the figures for the same month last year; 14,812 tons compared with 14,054, but the value fell from £3,398,085 in 1960 to £3,053,462 in 1961. These figures are given in the official Trade and Navigation accounts, which show that the largest quantity was exported to Hong Kong (1,369 tons), followed by Denmark (836) and Finland (713).

Imports were 6,647 tons (£2,042,358) in August 1961 compared with 6,342 (£1,997,587) in August 1960. USA and Western Germany remain the largest suppliers with 1,866 and 1,668 tons respectively.

During the first nine months of this year imports were 59,703 tons (£20,492,789); for the corresponding period last year they were 70,256 tons (£22,223,663). Exports were 145 748 tons (£31,669,687) compared with 128,830 (£32,577,096) in 1960.

Details of imports of plastics materials during September 1961:

	Tons	£
Acrylics	619	126,149
Alkyd solid and liquid resins, solutions, emulsions and dispersions	207	39,004
Cellulose plastics:		
Acetate butyrate	26	23,907
Photographic (including cinematograph) film base (except acetate butyrate)	133	177,337
All other	105	65,560
Polyamides	647	421,045
Polystyrene	251	71,501
Polyvinyl chloride:		
Polymers and copolymers	1,645	183,700
All other	469	159,918
All other	2,545	774,237
Total	6,647	2,042.358

Exports of plastics materials during September 1961:

	Tons	£
Acrylic sheet, rod, tube, film, foil and profile shapes in primary form	476	271,333
Alkyd solid and liquid resins, solutions, emulsions and dispersions	381	84,043
Aminoplastics:		
Solid and liquid resins, including solutions	741	72,910
Moulding and extrusion compounds	662	123,826
Cellulose plastics:		
Moulding and extrusion compounds	218	73,080
Sheet, rod, tube, film (excluding regenerated cellulose), foil and profile shapes in primary form	162	95,068
Phenolics and cresylics:		
Solid and liquid resins (straight and modified)	1,206	174,768
Other	675	184,105
Polystyrene	871	169,698
Polythene (polyethylene) sheet, rod, tube, film, foil and profile shapes in primary form	124	45,996
Polyvinyl chloride:		
Polymers and copolymers	1,082	140,206
Moulding and extrusion compounds	803	168,504
Sheet	508	205,544
Other	81	23,726
All other	6,123	1,147,523
Waste and scrap (including celluloid and film waste and scrap)	699	73,132
Total	14,812	3,053,462

UK exports to countries in the European Economic Community (Common Market) and the European Free Trade Association are shown below.

Exports to Commonwealth countries during the month were 4,614 tons (4,660 in September 1960) and exports to all other foreign countries were 5,249 tons (4,823 tons).

EXPORTS TO EEC

	Sept. 1960	Sept. 1961
Western Germany	610	530
Netherlands	434	606
Belgium	370	284
France	324	578
Italy	460	472
	2,198	2,470

EXPORTS TO EFTA

	Sept. 1960	Sept. 1961
Sweden	703	168
Norway	304	586
Denmark	666	863
Switzerland	189	296
Portugal	296	396
Austria	205	170
	2,363	2,479

(Any apparent discrepancies are due to rounding off of figures)

Rubber Statistics

UK — CANADA — MALAYA

THE International Rubber Study Group has issued the following latest statistics on UK stocks, consumption, imports and re-exports of rubber (figures are given to the nearest 100 long tons):

Stocks	
February	34,800
March	38,900
April	37,100
May	38,700
June	37,200
Consumption	
May	14,300
June	16,800
Imports	
May	8,769
June	11,116
July	8,447
August	15,434
Re-exports	
May	17,304
June	9,001
July	10,669
August	11,539

Canada

Total consumption of rubber in Canada increased in August for the fourth successive month, but due to low figures at the beginning of the year, production for the first eight months of this year was lower than a year ago.

Consumption of rubber in August amounted to 7,758 long tons, up 8.1% from 7,176 tons in the corresponding month last year. Consumption in the January/August period decreased to 69,536 long tons from 71,705 a year ago.

August consumption of natural rubber fell to 2,155 long tons (2,416), while synthetic rubber rose to 4,523 long tons (3,837) and reclaimed rubber to 1,080 long tons (923). January/August consumption of natural rubber dropped to 19,952 long tons (24,133), and reclaimed rubber to 10,564 long tons (10,963), while synthetic rubber increased to 39,020 long tons (36,609).

Production of synthetic rubber in August this year amounted to 13,352 long tons (12,659), and in the first eight months rose to 108,359 long tons (105,390). Reclaimed rubber production in August amounted to 454 long tons (319), and in the first eight months this year to 3,755 long tons (4,061).

Malaya

Malayan rubber production during September totalled 64,636 tons, according to official statistics. Imports were 5,704 tons, exports 70,211 tons.

Stocks at the beginning of the month were revised slightly downward to 77,312 tons, and at the end of the month were 78,699 tons, comprising 58,188 in dealers' hands, 16,173 (preliminary) on estates and 4,338 awaiting shipment.

Plantation Newsletter

KL EXCHANGE BILL 'WARMLY RECEIVED'

by our Malayan Correspondent

FROM KUALA LUMPUR

THE long-awaited draft Bill and report of the drafting committee to establish a rubber exchange in Kuala Lumpur has now been published and warmly received by the industry here. Malaya makes no pretence to the contrary that the aim of the exchange is to take trade away from Singapore.

In its report, the drafting committee has described as one of its guiding principles 'to ensure that the contracts and trading rules of the exchange will prove so attractive to producers and dealers both in Malaya and abroad as to bring to the exchange a substantial share of the world trade in rubber, while at the same time maintaining the present Pan-Malayan character of the trade'.

According to observers here, the last part of this sentence was not added as an afterthought. In fact, full membership, and thus the right to vote and hold office as directors in the proposed corporation, is to be reserved for 'persons ordinarily resident and carrying on business in the Federation or companies carrying on business and registered in the Federation'.

The move to establish a rubber exchange in Kuala Lumpur — to come into being next year — must particularly be welcomed by consumers from more than 70 countries to whom Malaya sells its rubber for it is they, as much as anyone else, who stand to benefit.

The exchange in Kuala Lumpur is to become incorporated, which means that its rules and contract conditions will be given the sanction of law by the Government to ensure their enforceability.

Until now many dealings of Malayan rubber have been channelled through the Singapore Chamber of Commerce Rubber Association, which has its shortcomings in that it is not incorporated and therefore there is no hard and fast guarantee that brokers' contracts are enforceable.

When Natural Called the Tune

In the past, before the days of synthetic, natural rubber had a monopoly. It called the tune and buyers had to dance to it. This is not to infer that people connected with the production and selling of natural rubber were out to cheat or attempt malpractices on the consumers. But it is obvious that natural then had the upper hand. Today, however, times have changed.

Therefore, it is now of the greatest importance that there should be recourse to law to enforce contracts which have been made. Malaya, as the world's biggest producer of natural rubber, is more anxious than any other country to see that it carries a good and reliable name to buyers.

The principal trading contract of the new rubber exchange will be an fob contract which will be parallel to and interchangeable with the fob of the Singapore Chamber of Commerce Rubber Association. Indeed, a good deal more than interchangeability is offered. The Federation exchange will improve upon the present SCCRA's practice in a number of ways.

But attracting trade to Kula Lumpur means inducing brokers who now deal in Singapore either to transfer or duplicate their operations. The Bill makes it clear that there is nothing to prevent a Singapore broker from doing guarantee business through the Kuala Lumpur exchange, providing he can put down a security of at least $750,000.

Even a Federation broker wishing to conduct guarantee business through the new exchange will be required to furnish a security of at least $500,000 to meet claims of customers in the event of the broker's default.

The Federation Government has indicated its willingness to guarantee the $2m. required to set up a guarantee fund, which is an important adjunct of the new exchange. The Government is prepared to guarantee this sum, provided that the amount of levy on transactions is fixed by the Government so long as the guarantee has not been liquidated.

In addition, the Government is prepared to guarantee the annual recurrent expenditure of $150,000 to ensure that the exchange operates successfully from the beginning.

Some months ago, the chairman of Lewis and Peat (Singapore) Ltd., a leading brokerage house, said: Security can be obtained only by the extension of the present settlement contract rules under which dealers and brokers are required to settle differences whenever substantial fluctuations in the price of rubber occur and in the introduction of a proper clearing house system.

'A proper clearing house should be set up which would guarantee contracts and with which all dealers and brokers should be compelled to maintain deposits of a size sufficient to meet their liabilities under all outstanding contracts'.

It would appear that the suggestions put forward have been incorporated in the Kuala Lumpur Bill. And it is quite possible that Singapore will now introduce a number of reforms to strengthen its own operations.

PLASTICS MACHINERY DEVELOPMENTS

Continued from page 801

of the product characteristics to make a low density product, and the density may be varied by simply adjusting the flow of air into the mixing head.

In general, the product to be mixed is delivered by a positive displacement pump through a pipeline, under pressure, to the mixing head and thence to the point of application. Capacity is proportional to the speed of the product pump. Prior to or after entering the mixing head, air or other ingredients may be introduced under pressure into the product stream, in the precise proportion required to produce the final density or product desired. In the case of air or other gas, this is accomplished by a simple adjustment of the Flowmeter which controls the flow, the response being immediate. In the case of liquids, these may be introduced by means of proportioning pumps. At any given capacity, final density is inversely proportional to the quantity of air admitted. Where blending, dispersion or emulsification is desired, air may or may not be employed as required.

In the production of foam rubber and plastics, the proportioning pumps for injecting chemicals are easily and readily adjusted to the correct quantity and proportion required for any given capacity.

Capacity

Maximum capacity of the Oakes Continuous Automatic Mixer depends on the product being mixed. Range of capacity is limited by the maximum speed ratio available in the power unit which drives the product pump. This is approximately 7:1, which establishes the minimum and maximum capacity of any given model, the range of capacity being within these limits. The maximum rated capacity is on a conservative basis. Table 1 indicates the normal range of capacity for different products for all models of the Oakes Continuous Automatic Mixer.

TABLE 1
RATED CAPACITIES IN POUNDS PER HOUR

	Model 8M		*Model* 10M		*Model* 14M	
	Min.	*Max.*	*Min.*	*Max.*	*Min.*	*Max.*
Latex foam rubber, wet..	50	450	150	900	300	1,800
Synthetic foam rubber ..	50	450	150	900	300	1,800
Plastisols, elastomer ..	100	600	225	1,200	600	2,400
Vinyl sponge	50	450	150	900	300	1,800

Rubber and Plastics Stock Market

A REVIEW OF PRICES AND TRENDS

SIR John Hanbury-Williams, chairman of the giant COURTAULDS chemical and textile group, shocked stock markets with news about the cut in the half-time payment. Shareholders this time are to get a dividend of 9d. per unit compared with last times 10d. Sales of the many subsidiaries which make up what is one of our leading firms spun ahead nearly 5% to reach a total of £83.45m. But once again, as so often is the case now, the margin of profit has shrunk and profits in the six months to end of September were sliced back £2m. to £7,586,000. Reason given for the contraction: lower prices and reduced sales in some fields of the home market and to lower profits obtainable overall in export markets, to which there was a substantial increase in sales volume.

The directors take a rather glum view about the outlook immediately ahead. For they stated that in today's unsettled conditions it is impossible to forecast final results with any confidence. However, present indications suggest that profits for the second half of the year should be of the same order as those for the first half. This was one of the company results that really took the steam out of what had started as a good sign of a recovery in share prices. But it is not the last bitter pill that investors will be forced to swallow over the coming months ahead. As far as company announcements are concerned this indeed could be a bleak winter for one and all.

At a recent shareholders meeting of TOOTALS, the chairman said that it would not be to the advantage of the company to indicate the profit-earning capacity of the subsidiaries. He gave this reply to someone who asked for more details about the way in which profits were made up. 'It has never been our practice to give details about how the group's income is made up', said the chairman, T. A. Fairclough. 'I am satisfied that any greater disclosure of details of where income arises may well prejudice the conduct of the business. In saying this I have something specific in mind'. One of the group's subsidiaries is THERMO PLASTICS LTD.

The GREENGATE AND IRWELL RUBBER concern disappointed with its report and decision to cut the interim dividend. There have been 'exceptional difficulties' experienced in the last few months and profits for the first six months of the year are 'considerably' down when compared with the corresponding figure of a year ago. Although profits at the halfway stage cannot be used as a guide to the result of the whole year, since profits are usually higher in the second half, it has been decided to slice the interim to 2¼%. The total for 1960-61 was 12½%. The

Continued on page 806

Share Price Movements

Par Value	Company	1961 High	Low	Oct. 28	Latest
£1	A.E. Ind. Ord.	48/6	28/3	30/6	31/3
5/-	Albright & W. Ord.	29/6	20/3	21/6	22/6
£1	„ „ „ 5% Pref.	17/3	13/-	13/6	13/-
5/-	Anchor Chemical Ord.	25/6	15/9	16/3	16/3
4/-	Airfix	41/3	17/-	37/3	39/9
4/-	„ Non Voting	34/6	16/-	30/6	34/3
5/-	Andersons Rub. Ord.	—	—	3/9	3/9
£1	Angus Geo. Ord.	83/-	58/6	67/3	68/-
5/-	Ault & Wiborg Ord.	17/-	12/9	14/-	14/3
£1	Avon India Rubber Ord.	46/6	30/-	36/3	36/-
£1	„ „ „ 6% Pref.	19/3	14/9	17/6	15/-
10/-	Bakelite Ord.	66/3	42/3	46/6	46/-
£1	„ 6% Pref.	19/3	16/6	16/6	16/6
£1	Baker Perkins Ord.	59/6	40/6	44/6	44/6
4/-	Bank Bdg. Rubber Ord.	3/6	1/9	2/-	2/-
4/-	Bettix	11/9	7/6	8/9	8/9
4/-	Brammer H. Ord.	17/-	13/9	13/9	13/9
10/-	Bridge, David Ord.	60/-	27/-	31/3	27/6
5/-	Bright, John Ord.	9/6	6/-	6/-	6/6
5/-	Brit. Blting. & Asb. Ord.	24/-	17/6	19/-	19/-
£1	„ „ „ „ Pref.	12/6	14/-	13/3	13/3
5/-	British Electronic Indus.	15/6	9/6	10/6	10/3
£1	BICC Ord.	62/6	49/-	55/-	57/3
5/-	BTR Ind. Ord.	18/9	8/9	10/9	9/6
£1	„ „ 7½% Pref.	21/6	19/6	20/-	20/-
10/-	Castrol Ord.	52/-	37/-	37/3	38/3
£1	Courtaulds Ord.	47/6	29/6	32/9	29/9
£1	„ 5% 1st Pref.	16/-	13/9	14/-	14/9
£1	„ 6% 2nd Pref.	18/3	15/9	16/-	16/6
4/-	Cow, P. B. Ord.	10/6	7/6	8/9	8/9
£1	„ „ 5% Pref.	14/3	12/6	12/6	12/6
1/-	Dannimac Mfg. Ord.	16/3	10/6	14/6	15/6
10/-	De La Rue Ord.	70/-	44/9	47/-	46/6
£1	„ „ „ 3½% Pref.	10/6	9/6	10/-	10/-
10/-	Distillers Co. Ord.	41/3	31/-	36/9	37/9
£1	„ „ 6% Pref.	20/3	17/-	17/6	18/-
£100	„ 5% Conv. Loan	£96	£90	£91½	£91½
£100	„ 5½% Unsec. Loan	£86½	£72	£75	£76½
10/-	Dunlop Rubber Ord.	29/-	21/6	25/9	26/6
£1	„ „ 5½% Pref.	16/-	13/9	14/6	15/-
£100	„ 3½% 1st Debs.	£69	£67	£69	£68
£100	„ 4½% 2nd Debs.	£79	£74	£74½	£74½
£1	Eng. Elect. Ord.	40/6	26/3	28/9	29/-
4/-	Ebonite Cont. Ord.	8/6	4/9	5/3	5/-
£1	English China Clays Ord.	117/6	80/-	97/-	97/9
£1	Goodyear Tyre 4% Pref.	11/6	9/9	10/-	10/-
5/-	Greeff Chem. Ord.	37/7	21/6	22/6	21/9
10/-	Greeff Chem. 5½% Pref.	8/3	6/9	7/-	7/-
4/-	Greengate & Irwell Ord.	6/9	3/3	4/6	3/4½

Par Value	Company	1961 High	Low	Oct. 28	Latest
5/-	Hackbridge Hldg.	6/9	4/9	5/3	5/6
£1	Harrisons & Crosfield Dd.	57/6	43/3	45/6	43/-
1/-	Hunt & Moscrop Ord.	2/3	1/3	2/-	1/9
£1	Imp. Chem. Ord.	81/6	56/3	59/9	62/6
£1	„ „ 5% Pref.	16/3	13/6	14/9	15/-
£100	„ 4½% Unsec. Loan	£83	£76½	£77	£80
£100	„ 5½% Conv. Loan	£93	£86	£87	£87
5/-	Laporte Ind. Ord.	28/9	18/3	19/-	20/-
£1	„ „ 7½% Pref.	23/-	20/-	20/-	20/-
£1	Leyland & Birm. Rubber Ord.	59/3	37/6	39/6	37/6
£1	„ „ „ 6% Pref.	18/9	15/-	15/-	15/-
2/-	London Rubber	15/6	9/6	12/9	13/6
£1	„ 6% Red. Cum. Pref.	20/-	16/9	17/6	17/6
£1	McKechnie Bros. Ord.	43/-	27/-	38/9	38/9
£1	„ „ 'A' Ord.	45/-	32/6	33/-	33/-
£1	„ „ 6% Cum. Pref.	18/-	16/-	16/6	16/6
5/-	Monsanto Chem. Ord.	27/6	14/6	15/-	17/6
£1	„ „ 3¾% Pref.	12/6	10/9	11/-	11/-
£100	„ „ 6% Debs.	£98	£88½	£89	£90
5/-	Miles (H.G.) Hldgs. Ord.	7/9	7/-	7/3	7/3
2/-	Movitex	7/6	4/6	4/6	4/9
4/-	North, J., & Sons 'A'	24/6	17/3	23/6	24/-
£1	North British Rubber	21/3	10/9	11/3	10/9
5/-	Northwestern Rubber	13/-	9/-	12/-	12/-
5/-	Plastic Enginrs. Ord.	40/-	28/3	28/3	28/3
10/-	Projectile & Eng. Ord.	50/6	22/6	36/-	30/-
5/-	Redfern Holdings Ord.	4/-	2/9	3/9	3/9
2/-	RFD Ltd. Ord.	6/3	3/6	4/-	4/3
£1	„ „ 5½% Pref.	15/-	10/6	11/3	11/3
2/-	Rubber Imp. Ord.	6/3	3/-	3/-	3/-
2/-	„ „ 'A' Ord.	5/-	2/3	2/6	2/6
£1	„ „ 5% 1st Pref.	13/3	11/3	12/3	12/-
5/-	Rubber Reg. Ord.	18/3	13/6	13/9	13/9
4/-	Shaw Francis Ord.	24/6	13/9	14/3	13/9
£1	Shell Ord. (Reg.)	140/-	108/-	116/-	113/-
2/-	Silentbloc Ord.	10/6	7/3	7/6	7/9
5/-	Storey Bros.	46/-	26/9	30/6	26/9
2/-	Sussex Rubber Ord.	2/7½	1/9	1/9	1/9
5/-	Sutcliffe Speak Ord.	18/6	12/6	12/6	12/6
£1	Tootals	35/6	23/-	23/3	23/3
£1	Turner & Newall Ord.	78/-	55/-	57/9	58/-
£1	„ „ „ 7% Pref.	21/6	19/-	20/3	20/6
5/-	Universal Asbestos Ord.	27/-	20/-	21/3	20/-
£1	Venesta Ord.	76/-	55/9	56/9	59/6
5/-	Viscose Dev. Ord.	16/3	13/3	14/6	14/3
5/-	Warne W. (Holdgs.) Ord.	21/6	14/9	17/6	17/6

Rubber Markets

LONDON

The United Kingdom rubber market finished a moderately active week about ⅛d. per lb. lower on balance. Despite a new one-year programme by the GSA for sales of United States stockpile rubber which traders said had largely been discounted in London in view of a similar move by the British Board of Trade, a few days before the market continued to ease in sympathy with a general downward movement at origin, where makers selling pressure was induced by the October export figure of 107,131 tons. Early in the week, however, good short covering interest allied to a continuing small factory enquiry, which was partially induced by the ½% Bank Rate cut, caused a minor technical rally following the recent sharp decline. The improvement was nevertheless short lived. Turnover in the landed market was better than of late while trading in physicals was spasmodic and selective, and therefore restricted to covering. The demand developed for forward shipment mainly for January/March positions during the period and reasonable offtrade was effected. The market was latterly quiet owing to closure at both Singapore and New York.

Latest prices are as follows:
No. 1 RSS Spot: 22¼d.-22½d.
Settlement House:
December 22⅜d.-22½d.
January 22½d.-22⅝d.
February 22¼d.-22⅜d.
March 22⅜d.-22⅞d.
January/March 22⅜d.-22⅞d.
April/June 22⅞d.-23d.
July/September 23d.-23⅛d.
October/December 23⅛d.-23¼d.
No. 1 RSS cif basis ports:
November 21⅞d.-22⅛d.
December 22⅛d.-22⅜d.
January 22⅛d.-22½d.
Godown:
November 73 buyers (Straits cents).

Latex

Centrifuged 60% latex per gallon in drums, seller, December/January, 13s. 3d. cif European ports. Spot, seller, 13s. 9d. Bulk, seller, d.w. 13s. 2d. Normal, seller, December/January, 10s. 4d.

AMSTERDAM

The Amsterdam rubber market ruled as under on November 6:

No. 1 RMA	Guilders per kilo Nov. 6	Previous
Nov.	2.17	2.19
Dec.	2.17	2.19
Oct./Dec.	2.17	2.19
Jan.	2.17	2.19
Feb.	2.17	2.19
March	2.17	2.19

Sales: Nil. Tendency: Quiet.

BANGKOK

The price of No. 1 RSS at Bangkok on November 6 was 25.00 (25.00) US cents per lb.

NEW YORK

The New York rubber market ruled as under on November 6:

Dealers' Prices

	US cents per lb., ex-dock Nov. 6	Previous
No. 1 RSS, Nov.	27⅜b–27½a	27⅜b–27½a
Dec.	27⅛b–27⅜a	27⅛b–27⅜a
No. 2 RSS, Nov.	27⅛b–27⅜a	27⅛b–27⅜a
Dec.	27⅛b–27⅜a	27⅛b–27⅜a
No. 3 RSS, Nov.	27⅛b–27⅜a	27⅛b–27⅜a
Dec.	27b –27⅛a	27⅛b–27⅜a
No. 1 RSS, Spot	28n	28⅛n
No. 3 amber blanket crepe, Nov.	25½n	25½n

Futures—Rex Contract

	Nov. 6	Previous
Nov. ..	27.35b–27.50a	27.40b–27.70a
Jan. ..	27.35b–27.50a	27.52b–27.65a
Mar. ..	27.30b–27.45a	27.40b–27.50a
May ..	27.25b–27.35a	27.40b–27.45a
July ..	27.30b–27.35a	27.35b–27.45a
Sept. ..	27.30b–27.35a	27.35b–27.45a
Nov. ..	27.30b–27.35a	27.35b–27.45a

Sales: Two. Tendency: Dull.

Futures were barely steady on November 6 in very quiet dealings. Traders said physical rubber was also very quiet and prices were slightly lower.

SINGAPORE

Quiet conditions prevailed on November 6 and fluctuations were narrow. Opening values were slightly lower and in view of small overseas interest, there appeared to be little inclination to trade. Demand for lower sheets was selective. The accent was mainly on December shipment. The afternoon was very quiet. Prices tended steady slightly later in the session. Lower sheets were in little demand.

	Malayan cents per lb., fob Malayan ports to open ports Nov. 6	Prev. Close
No. 1 RSS, Nov. ..	75½–75¾	76¼–76⅜
Dec. ..	76½–76¾	77⅛–77⅜
No. 2 RSS, Nov. ..	74½–75	75½–75⅞
No. 3 RSS, Nov. ..	73½–73¾	73⅞–74⅛
No. 4 RSS, Nov. ..	71½–72½	72 –73
No. 5 RSS, Nov. ..	70½–71¼	70¾–71¾
No. 1 RSS, Prompt	75½–75¾	76¼–76½
No. 3 blanket thick remilled crepe, Nov.	71½–72½	71½–72½
No. 1 fine pale crepe, Nov.	86 –87	86½–88
2x thin brown crepe, Nov.	70½–70¾	70½–71½

Tendency: Quiet.

DJAKARTA

	Rupiahs per kilo Nov. 6	Prev.
Spot, No. 1 Priok ..	38.00b	37.75b
Spot, No. 2 Priok ..	37.00b	36.75b
Spot, No. 3 Priok ..	36.00b	35.75b
Spot, No. 1 fine pale crepe	Unreceived	36.00b

Tendency: Firm.

CEYLON

The price of No. 1 RSS at Colombo on Nov. 6 was 88½ (89½) Ceylon cents per lb.

Aspect Distributor

Allied Structural Plastics Ltd., of Dunstable, manufacturers of Aspect products, has appointed the Atlas Asbestos Cement Co. Ltd. (a subsidiary of the Atlas Stone Co. Ltd.) as distributors of Aspect pvc rainwater goods and sheeting with effect from January 1 1962.

Atlas Asbestos Cement will therefore become joint main distributors of Aspect products with the Universal Asbestos Manufacturing Co. Ltd.

Aspect rainwater goods are being shown on the stands of both distributing companies at this month's Building Exhibition (November 15-29).

New Adhesive for Laminates

Ciba (ARL) Ltd. will introduce at the Building Exhibition a quick-tack adhesive — Ardux — specially produced for bonding laminates such as Formica Beautyboard, Holoplast, and Warerite Wallboard, direct to brickwork and to other types of rough wall, without recourse to wood battens.

It is said to be particularly suitable for use on uneven surfaces, and can bridge gaps up to ¼in. without flowing.

The exhibition opens on November 15.

Canadian Asbestos

Canadian mines shipped 102,077 tons of asbestos in September this year as compared to 105,689 tons in the corresponding month of last year, a decrease of 3.4%. With increases in all previous months of the year except January, February and March, shipments in the January-September period rose 2.7% to 831,090 tons from 809,126 tons in the same period of 1960.

Mines in Quebec Province shipped 4.5% less asbestos in September than a year earlier at 96,632 tons, against 101,157, but 2.4% more in the nine months period at 778,226 tons, against 750,706.

STOCK MARKET

Continued from page 805

actions which Chancellor Selwyn Lloyd took have affected the general credit situation of the country very seriously and the company's liquid position has been giving the directors a certain amount of concern. In a statement to members, J. Frankenburg, who heads the group, said 'In the present circumstances, affected as they are by conditions outside those which usually influence our business and over which we have no control, I am sure you will understand that it is really impossible to give you an indication of what our position will be at the end of the next six months'.

Industry INTELLIGENCE

Technical Data

Robac Z.Bu.D

Robinson Brothers Ltd., Chemical Manufacturers, Ryders Green, West Bromwich, has issued a data sheet on Robac Z.Bu.D. Extra (zinc dibutyl dithiocarbamate - dibutylamine complex).

Robac Z.Bu.D Extra is an active non-staining accelerator for natural rubber, and can be used for rubber doughs, cements, self-cured proofings, doubling mixes and natural latex at room temperature. It can be made more active by use in conjunction with Robac Z.I.X. Physical mixtures of Robac Z.Bu.D Extra and Robac Z.I.X are chemically unstable on storage, even though each component is stable when stored by itself, and therefore premixing of Robac Z.Bu.D Extra and Robac Z.I.X is to be avoided.

Polymer Reports

Polymer (UK) Ltd., Walbrook House, Walbrook, London, E.C.4, has issued three more technical reports. No. 61:9A deals with Polysar Krynac 803 soft roll compounds which are suitable for the manufacture of very soft printing rollers. No. 61:9B contains information on Polysar rubber in direct-moulded microcellular soling stocks. The report presents details on compounding and vulcanizing moulded-on microcellular soling, and describes two stocks which are suitable for this application.

Polysar latex adhesives in reconstituted foam rubber is the topic for report No. 61:9C. It describes an effective means of working away foam rubber scrap. The scrap is ground to a fine crumb, mixed with a third of its weight of a Polysar latex adhesive and moulded into slabs.

Polyethylene Glycols

A new technical brochure evaluating seven types of polyethylene glycol has been made available by Allied Chemical International, 40 Rector Street, New York 6, New York.

Polyethylene glycols are said to be versatile because of blandness, compatibility, and resistance to deterioration. They are odourless and practically colourless and have a low vapour pressure, high flash point, high chemical stability and low toxicity. Polyethylene glycols with molecular weights up to 600 are viscous liquids at room temperature; those above 600 are white, waxy solids. Melting or freezing points, flash point, viscosity, and specific gravity increase as the molecular weight increases. Vapour pressure, hygroscopicity, and solubility in organic solvents decrease as the molecular weight increases.

Publications

Lactron Thread

Lastex Yarn and Lactron Thread Ltd., St. Mary's Mills, Leicester, has issued a booklet on Lactron, the rubber thread. The first part of the book gives a general picture, in words and photographs, of the uses of Lactron and tells the story of its production.

The second part summarizes the more important laboratory tests and tabulates data which should interest elastic manufacturers and the users of the elastic fabrics they produce. Copies of the booklet can be obtained from the company.

Bonding Construction

Ciba (ARL) Ltd., Duxford, Cambridge, has issued technical notes No. 225 on bonding and sandwich construction.

Metal-to-metal bonding has proved successful in joining both primary and secondary structures but in recent years the requirements for structures in terms of loading and environment have changed rapidly, and other methods of fabrication have appeared. Nevertheless, metal-to-metal bonding and its newer partner, honeycomb sandwich construction, show signs of more extensive use in the future.

The booklet describes the methods of fabrication and states the future developments expected in this field.

Nylon Film

British Cellophane Ltd., Henrietta House, 9 Henrietta Place, W.1, has issued a booklet on nylon film. BCL nylon film is claimed to have three significant characteristics: a wide use-temperature range, which will allow its use under conditions of extreme cold or heat; strength and toughness, which admit of comparatively rough usage without deterioration; good resistance to grease and oil, which makes it a barrier to, or container for, these substances. The film can be used for such diverse end-uses as the sterilization of surgical instruments when packed, the quick-freezing of food, and as an underlay for hot (oily and abrasive) asphalt.

PVA Film

British Cellophane Ltd., Henrietta House, 9 Henrietta Place, W.1, has issued a booklet on polyvinyl alcohol film. BCL pva water-soluble film is manufactured by an extrusion process. It is claimed to be tough and heat sealable, and is readily soluble in hot water. When made up into sachets, it is said to have a fast rupture time in both hot and cold water, though it does not dissolve easily in cold water. It is particularly suitable for packaging powdered or solvent-based products, which are to be dissolved in water in measured quantities.

Silicones in Engineering

'Silicones in Engineering' is the title of a new booklet issued by Midland Silicones Ltd., 68 Knightsbridge, S.W.1. A combination of properties makes silicones ideal materials for many engineering applications. They have led to new designs and have made the reliability of several types of equipment more certain.

The booklet sets out the principal ways in which silicones can be used in engineering and allied industries, with examples and illustrations from current industrial practice. It lists suppliers of components or equipment made with MS silicones, and names other publications available. Copies of the booklet (coded A11) are available from the company.

Machines, Materials and Equipment

Dexion Accessories

Dexion Ltd. is introducing shelving accessories which are said to make its racking systems more comprehensive and flexible. The new accessories will make it possible to have various types of storage bay within any given run of Dexion steel shelf racking. Also, existing structures can be converted either wholly or in part to closed-type racking, without dismantling.

The new range consists of steel cladding sheets, used as backs and sides to Dexion racking; divider clips, for clipping on to the front and back edges of the shelves; steel dividers, for subdividing the shelves to store small components; and card holders, which bolt to the front or back of any shelf to hold cards for identification or pricing. Apart from racking applications, cladding sheets can help to build other structures, such as counter fronts and machine guards.

A brochure, describing the complete range of Dexion shelving components, is available from the company at Maygrove Road, London, N.W.6.

Instruments from Stock

Cambridge Instrument Co., 13 Grosvenor Place, London, S.W.1, has published a series of leaflets detailing ranges of instruments, made at the mechanical thermometer division and now available from stock. These include dial type thermometers with vapour-pressure and mercury-in-steel systems, temperature regulators, draught and pressure indicators and recorders, and humidity instruments.

Material Prices

Prices of materials appear regularly in RUBBER AND PLASTICS WEEKLY each month. It will be appreciated if suppliers will give notification of any price changes and additions to or deletions from their range. Comments on the present materials and classifications are invited in order that the list may be made of maximum service to our readers.

Unless otherwise stated prices are per lb. In most cases prices vary according to quantity. pc—per cwt pg—per gallon pt—per ton ag—according to grade xs—ex-store xw—ex-wharf dp—duty paid sp—special prices for contracts del—delivered cp—carriage paid

Accelerators

Alpha	5s. 8d.—6s. 4d.
Ancap cp	2s. 10d.—3s. 8d.
Ancap Zinc Salt cp	3s. 2d.—4s. 2d.
Ancatax cp	3s. 9d.—4s. 6d.
Ancazate BU cp	6s. 3d.—6s. 9d.
Ancazate ET cp	5s.—6s. 4d.
Ancazate ME cp	6s. 2d.—7s.
Ancazate Q cp	6s. 1d.—6s. 4d.
Ancazate XX cp	5s. 1d.—5s. 9d.
Ancazide ET cp	5s. 9d.—6s. 6d.
Ancazide IS cp	7s. 6d.—8s. 6d.
Ancazide ME cp	4s. 6d.—5s.
Cu.D.D.	9s. 3d.—10s.
D.Bu.D.	10s. 6s.—11s. 3d.
D.D.D.	12s. 2d.—13s. 3d.
D.P.G. cp	3s. 5d.—4s. 2d.
D.O.T.G. cp	4s. 5½d.—4s. 9d.
Dibenzo GMF	27s.—28s. 6d.
Furbac cp	5s.—5s. 9d.
Gamma	10s. 6d.—11s. 3d.
GMF	27s.—28s. 6d.
L.M.D.	9s. 3d.—10s.
M.Z.I.	3s. 6d.—4s. 2d.
N.Bu.D.	10s. 6d.—11s. 3d.
Ni.P.D.	12s. 2d.—13s. 3d.
P.P.D.	12s. 2d.—13s. 3d.
P.T.D.	12s. 2d.—13s. 3d.
Robac 22	10s.—11s. 3d.
Robac 44	9s. 1d.—9s. 10d.
S.P.D.	9s. 3d.—10s.
Suparac M	9s. 7d.
T.B.U.T.	15s.—16s.
T.E.T.	6s. 6d.—7s. 4d.
Thiuram P.25	15s.—16s.
T.M.S.	7s. 8d.—8s. 6d.
T.M.T.	5s. 4d.—6s. 3d.
Vulcacit CZ deldp	7s. 1d.
Vulcacit F deldp	4s. 8½d.
Vulcacit NP deldp	11s. 2d.
Vulcacit P Extra N deldp	8s. 1d.
Z.B.E.D.	15s.—16s.
Z.Bu.D.	6s. 3d.—7s. 3d.
Z.D.C.	5s. 1d.—5s. 7d.
Z.L.	9s. 3d.—10s.
Z.P.D.	9s. 3d.—10s.

Antioxidants and Antiozonants

Agerite AK cp	3s. 6½d.—4s. 5½d.
Agerite HPX cp	4s. 5d.—4s. 10d.
Agerite Powder cp	3s. 7d —4s.
Agerite White cp	8s. 10d.—9s. 7d.
Antioxidant 2246 cp	11s. 8d.—12s. 4d.
Antioxidant 425 cp	18s. 6d.—19s. 3d.
Antioxidant SP cp	3s. 8d.—5s.
BLE-25	3s. 7d.—4s. 5d.
BXA	3s. 6½d.—4s. 5½d.
Naugawhite	4s. 9d.—5s. 6d.
Octamine	3s. 9d.—4s. 6d.
Polygard	3s. 7½d.—4s. 5d.
UOP 88 xs	9s. 3d.
UOP 288 xs	9s. 3d.
Wing-Stay S	3s. 8d.—4s.
Wing-Stay T	4s. 10d.—5s. 6d.
Wing-Stay 100	10s. 6d.—11s. 6d.

Compounding Ingredients

Barytes ptag	£10—£40
Calcium Silicate del	9d.—10½d.
Calcene ptxw	£52—£69 10s.
Calcined Clay (Burgess) ptxs	£37—£53
Carbonate, Light Mg. ptsp	£97
Carbonate, Actidated Ca. pt	£28—£30
Carbon Blacks:	
Conductex SCF	1s. 2½d.
Continental AMPC ag	11½d.—1s. 4½d.
Continex FEF ag	9½d.—10½d.
Continex HAF ag	10½d.—11d.
Continex HMF ag	9½d.—9½d.
Continex ISAF ag	1s. 0½d.—1s. 0½d.
Continex SRF, SRF-NS ag	8½d.—9d.
Dixie 45 GPF xs	6½d.—7½d.
Dixie 60 HAF xs	7½d.—8½d.
Dixie 70 ISAF xs	9½d.—10½d.
Dixiedensed HM MPC xs	11½d.
Dixiedensed 77 EPC xs	11½d.
Furnex SRF	9d.
Kosmos 45 GPF	6½d.—7½d.
Kosmos 60 HAF	7½d.—8½d.
Kosmos 70 ISAF	9½d.—10½d.
Magecol 888 cp	7.60d.
Micronex MPC	11½d.
Micronex W6 EPC	11½d.
Philblack A. FEF	7d.—8d.
Philblack E. SAF	1s. 0½d.—1s. 1d.
Philblack G. GPF	6½d.—7½d.
Philblack I. ISAF	9½d.—10½d.
Philblack O HAF	7½d.—8½d.
Statex B. FF	10½d.
Statex R. HAF	11d.
Statex 93 HMF	9½d.
Sterling SO FEF	7d.—7½d.
Sterling V. GPF	6½d.—7d.
Ukarb 327 GPF xs	6½d.—7½d.
Ukarb 340 xs	7½d.—8½d.
Vulcan 6 ISAF	9½d.—10d.
Vulcan C CF	11d.—11½d.
Vulcan 3 HAF	7½d.—8d.
Vulcan XXX SCF	1s. 2½d.—1s. 2½d.
China Clay ptagxs	£12—£68 10s.
Factice Dark cp	1s. 0½d.—1s. 10d.
Factice Whitbro cp	1s. 3½d.—2s. 2½d.
Factice White	1s. 5½d.—1s. 11d.
Kieselguhr Spanish White ptxs	£37 12s. 6d.
Lithopone 30% ptxs	£68 10s.
Manosil VN3 pt	£109—£139
Manosil AS7	£84 10s.—£114 10s.
Micafine Powdered Mica ptxs	£67 10s.
Ochre Yellow pcxs	£1 19s.
Oxide Light Mg ptsp	£245
Oxide Red pcxs	£4 3s.
Oxide Titanium 98% pcxs	£8 8s
Rutiox CR pcxs	£9 3s
Rubber Gen. Gran. Mineral ptxs	£35 5s.
Shellac Dewaxed xs	2s.—3s. 9d.
Shellac Orange xs	1s. 9d.—2s. 3d.
Silica Hydrated ptxs	£113
Sulphur Manox Insoluble del	1s. 9d.
Sulphur Powdered ptdel	£20 17s.
Sulphur Sublimed Flowers ptxs	£52 10s.
Talc Norwegian ptxs	£13 7s. 6d.
Talc Italian ptxs	£30 2s. 6d.
Tufknit Durham CS	8½d.—10½d.
White Lead Dry ptdelsp	£110 5s.
Whitetex 2 Clay ptxs	£45 10s.
Whiting ptxs	£5 9s. 6d.—£7 7s. 6d.
Zinc Oxide pcdel	£6

Plasticizers and Softeners

Abalyn pc	220s.—271s.
Al Stearate ptxwdp	£253 10s.
Bioflex 102 pt	£513—£568
Butyl Ricinoleate	2s. 6d.—2s. 6½d.
But. Ac Ricinoleate	3s. 0½d.—3s. 1½d.
Butyl Stearate pt	£277—£282
Ca. Stearate ptcp	£220
Diallyl Phthalate	3s. 11d.—4s. 11½d.
Dialkyl Phthalate pt	£221—£222
Dibutyl Phthalate pt	£203—£204
Dibutyl Sebacate	5s. 9½d.
DiOA pt	£354—£357
DiOS sp	5s. 0½d.—5s. 2d.
DOA pt	£414—£420
DOP pt	£276—£277
DOS sp	5s. 7½d.—5s. 9d.
Diisobutyl Phthalate pt	£196—£197
Diisooctyl Phthalate pt	£221—£222
Dinonyl Phthalate pt	£211—£212
DNS sp	5s. 2½d.—5s. 4½d.
Ester Gum pcag	130s.—150s.
Flexol 3GO	4s. 8d.
Hercolyn pc	242s.—294s.
Lankroflex ED3	3s. 2d.—3s. 2½d.
Lankroflex 29 pt	£216—£217
Lead Stearate ptxwdp	£223 10s.
Methyl Ricinoleate	2s. 4d.—2s. 4½d.
Me. Ac Ricinoleate	2s. 11½d.—3s. 0½d.
Polyglycol Oleate 400 pt	£285
Reomol D79A pt	£354—£357
Reomol D79S sp	5s. 0½d.—5s. 2d.
Reoplex 100 sp	6s. 1½d.—6s. 2½d.
Reoplex 110 sp	5s. 10d.—6s. 5½d.
Reoplex 220 sp	5s. 6½d.—5s. 8d.
Reoplex 300 sp	7s. 2d.—7s. 3½d.
Reoplex 400 sp	4s. 2½d.—4s. 4d.
Rosin Oil pgag	8s.—18s.
Triphenyl Phosphate pt	£359
Tricresyl Phosphate pt	£233
Trixylyl Phosphate pt	£200
Zinc Stearate ptdel	£220—£230

Solvents and General Chemicals

Acetic acid ptdel	£77—£100
Acetic Anhydride ptdel	£128
Acetone ptdel	£75—£120
Alcohol:	
Absolute 74.5 op pgdel	4s. 0½d.—4s. 4½d.
Butyl pt	£132—£193 10s.
sec-Butyl ptdel	£128—£168
Ter-Butyl ptdel	£172—£195
Isopropyl Tech. 99% pgdel	5s.—6s. 5½d.
Butyl 'Carbitol' pt	£283
Butyl Acetate pt	£159—£217
Caprylic Acid ptdel	£395
Carbon Bisulphide ptxs	£71 10s.
Carbon Tetrachloride pg	12s. 4d.—20s.
'Cellosolve' Acetate pt	£250
Cresol m- 98% del	4s. 9d.
Cresol o- 30/31°C. del	1s.
Cresol p- 34/35°C. del	5s.
Ethyl Acetate pt	£131—£189
Formaldehyde ptdel	£40
Glycol:	
Diethylene pt	£158
Ethylene pt	£132
Polyethylene 200 pt	£214
,, 300 pt	£214
,, 400 pt	£214
,, 1,500 pt	£264
,, 4,000 pt	£274
,, 6,000 pt	£294
Isopropyl Acetate pt	£126—£184
Isobutyl Acetate 80% pt	£126—£185
Lauric Acid ptdel	£273
M.E.K. ptdel	£134 10s.—£143 10s.
M.I.B.K. ptdel	£166—£209
Methylated Spirits pgdel:	
Industrial 61op	5s. 5½d.—7s. 2d.
,, 74 op	6s. 3d.—7s. 11½d.
'Q' grade 68 op	8s. 5½d.—10s. 5d.
Pyridinised 66 op	5s. 10d.—7s. 6½d.
Denatured Methanol	3s. 9½d.—4s. 10d.
Monoethanolamine pt	£252
Naphtha Coal tar pg:	
Heavy 90—190	4s.
Light 90—160	5s. 1d.
Palmitic Acid ptdel	£147
Phenol pldel	1s. 4d.—1s. 7d.
Pyridine pg	16s. 6d.
Stearine ptag	£108—£130
Toluol Pure/Nitration pg	5s. 8d.
Toluol 90's pg	5s.
Triethanolamine pt	£224
Xylol 2/30 pg	5s. 9d.

TRADE MARKS

Objections to the registration of any of the undermentioned applications may be lodged with the Comptroller-General of Patents, Designs and Trade Marks at the Patent Office, 25 Southampton Buildings, Chancery Lane, London, W.C.2, within one month of the date mentioned. The objections must be stated on Trade Marks Form No. 7, cost £2, obtainable through any money order office. The extracts—from 'The Trade Marks Journal'—given below are reproduced by permission of the Controller of H.M. Stationery Office.

Alpon (819,180). Moulding material for industrial purposes consisting of polyester resin reinforced with fibrous material. Scott Bader and Co. Ltd., Wollaston Hall, Wollaston, Wellingborough, Northamptonshire, and 109 Kingsway, London, W.C.2. (Class 1; August 23 1961.)

(817,982). Bags and wrappings included in Class 16 made from plastics. British Visqueen Ltd., Imperial Chemical House, Millbank, London, S.W.1. (Class 16; August 23 1961.)

Marshmallow (814,268). Vinyl plastics in sheet form included in Class 17. Herman Schecter, trading as Sommers Plastic Products Co., 330 Fifth Avenue, New York, State of New York, USA. Address for service is c/o Forrester, Ketley and Co., Jessel Chambers, 88-90 Chancery Lane, London, W.C.2. (Class 17; August 23 1961.)

Ugikral (817,104). Plastics included in Class 17, caoutchouc and natural and synthetic rubber. Societe d'Electro-Chimie, d'Electro-Metallurgie et des Acieries Electriques d'Ugine, 10 Rue du Général Foy, Paris, France. Address for service is c/o Carpmaels and Ransford, 24 Southampton Buildings, Chancery Lane, London, W.C.2. (Class 17; August 23 1961.)

COUNTY COURT JUDGMENTS

NOTE.—*These judgments which are supplied from the Registry of County Court Judgments, Lord Chancellor's Department, 3 Dean's Yard, London, S.W.1, are not necessarily for debt, and some may have since been satisfied. They may be for damages or otherwise, they may relate to actions bona fide contested between the parties, or they may be against defendants liable in a representative capacity and not personally; but no distinction is made on the register. A judgment does not imply inability to pay. Judgments are not returned to the Registry if satisfied in Court Books within twenty-one days.*

Castleton Plastics Machinery Ltd., Mill Works, Mill Lane, Castleton, Sheffield, Birmingham, £57, September 6 1961.
Household Plastics Ltd., Castle Works, Castlemere Street, Rochdale, Lancs, Manchester, £29, August 25 1961.
Lightweight Plastics Ltd., Slade, Ilfracombe, Devon. Barnstaple, £31, September 22 1961.
Southern Battery and Tyre Co., 3 Rockstone Place, Southampton, Hants. Brighton, £70, August 29 1961.
Wembley Tyres, Blackbird Hill, N.W.9, Middlesex. Wandsworth, £17, August 3 1961.
West End Plastics Ltd., 184 Aldersgate Street, London, E.C.1, Middx. Mayor's and City, £70, September 15 1961.
Kenneth Levitt, 81 Wooton Street, West Bowling, Bradford, Yorks., tyre dealer. Bradford, £30, September 15 1961.
Richard Warburton, 17 Tennyson Avenue, Oswaldtwistle, Lancs., tyre factor. Accrington, £101, September 13 1961.
B. M. Wardle (Plastics) Co., 4-6 Market Street, Southport, Lancs. Leicester, £22, September 12 1961.
Virex (Plastics) Ltd., Willow Bridge, Halsall Road, Birkdale, Southport, Lancs. Leicester, £12, August 30 1961.
Lightweight Plastics Ltd., Slade Lodge, Ilfracombe, Devon. Bradford, £29, September 6 1961.
Terole (Suppliers) Ltd., 23 Commercial Street, Oswaldtwistle, Lancs., tyre factors. Halifax, £13, September 8 1961.

NEW COMPANIES

Duffield Clothing Supply Co. Ltd. (703,913). September 22. Capital: £1,000 in £1 shares. To carry on the business of manufacturers of, and dealers in, industrial and protective overalls and clothing of all kinds, and as rubber proofers generally, etc. The directors are: John Dixon, 47 Tamworth Street, Duffield; Walter J. Gratton, Stepping Lane, Boxsall, Derbys. Regd. office: 47 Tamworth Street, Duffield, Derbys.

Vernon Street (Duralite) Co. Ltd. (703,943). September 22. Capital: £10,000 in £1 shares. To engage in any process or manufacture in connexion with skins, hides, kips, leather, hair, fur, horns, hooves, bones, wool, leatherette, rubber, plastics, etc. The directors are: William Richardson, Daresbury Lodge, Daresbury, Ches.; John C. Richardson, 'Edgerton', Appleton, Ches.; Clifton W. Hulance, Roland K. Bootes, Frank Hill and Mrs Kathleen E. W. Richardson. Regd. office: 63 Mersey Street, Warrington.

Sun Chemical Corporation (UK) Ltd. (703,942). September 22. Capital: £100 in £1 shares. To carry on the business of manufacturers of, and dealers in, polystyrene foam and other chemical products, etc. The directors are: William J. Fullerton, Norman E. Alexander, Eugene Jacobson, Stuart Z. Krinsly and Joseph Y. Resnick.

Everest Plastics (Sales) Ltd. (702,867). September 11. Capital: £100 in £1 shares. To carry on the business of manufacturers of, and dealers in, plastics substances, etc. The directors are: Helen Press and Linda H. Press, both of 15 Crooked Usage, N.3; Montague Lewis, 110 Bridge Lane, N.W.11. Regd. office: 31/32 Haymarket, S.W.1.

Coltman and Co. (Plastics) Ltd. (704,111). September 26. Capital: £1,000 in £1 shares. To carry on the business of manufacturers of, and dealers in, all types of plastics products, etc. The directors are: Leonard Coltman and Helen Coltman, both of 31 Kennersdene, Tynemouth. Regd. office: Post Office Chambers, St. Nicholas Street, Newcastle upon Tyne.

Hardy Fibreglass Products Ltd. (703,675). September 20. Capital: £100 in £1 shares. The directors are: John R. Hardy, 65 Nigel Road, E.7; Ronald A. Hardy, 29 Lansdowne Road, E.7. Regd. office: 65 Nigel Road, E.7.

Colour Structures Ltd. (703,710). September 20. Capital: £100 in £1 shares. To carry on the business of manufacturers of, and dealers in, plastics materials, etc. The directors are to be appointed by the subscribers.

Kingsley and Keith (Plastics) Ltd. (704,018). September 25. Capital: £500 in £1 shares. To carry on the business of manufacturers of, and dealers in, plastics materials, etc. The directors are to be appointed by the subscribers.

Bendz (Plastics) Ltd. (703,742). September 21. Capital: £4,000 in £1 shares. To carry on the business of manufacturers of, and dealers in, plastics, and synthetic substances, etc. The directors are to be appointed by the subscribers.

J.L.J. Plastics Ltd. (704,142). September 26. Capital: £2,500 in £1 shares. The directors are: William D. Lee, 'Uplands', High Street, Nelson, Glam.; William J. Jones, 'Shirley', Nelson Road, Ystrad Mynach, Glam. Regd. office: 29 Gellivastad Road, Pontypridd, Glam.

Loplast Ltd. (704,060). September 25. Capital: £100 in £1 shares. To carry on the business of manufacturers of, and dealers in, plastics materials, etc. The first directors are to be appointed by the subscribers.

Taylor Kerr Ltd. (704,832). October 4. Capital: £100 in £1 shares. To buy, sell, manufacture and trade in metal products, plastics products, etc. The directors are: William Taylor, 23 Christchurch Avenue, Kenton, Middlesex; John S. Kerr, 82 Heathcoat Avenue, Willowdale, Ontario, Canada; Luigi G. Deacon, 29 Barton House, N.1. Regd. office: 350 Gresham House, Old Broad Street, E.C.2.

T. and T. Salvage Ltd. (704,747). October 3. Capital: £1,000 in £1 shares. To carry on the business of dealers in, and disposers of, tyres, tubes, etc. The directors are: John A. Brisbane, 'The Lee', Knighton, Radnor; Arnold E. Brisbane, The Lealands, Staunton-on-Arrow, Herefordshire; Malcolm S. Norton. Regd. office: 26 Claremont Hill, Shrewsbury.

J.M.G. Plastics Ltd. (704,743). October 3. Capital: £100 in £1 shares. To carry on the business of buyers, sellers, importers and exporters of, and dealers in, plastics materials and goods, etc. The directors are: James M. Green and Shirley Green, both of 'Cranston', Clitheroe Road, Whalley, near Blackburn, Lancs.; George R. Edmondson, 1 Abbey Road, Whalley, near Blackburn, Lancs. Regd. office: Bradley's Chambers, 14 Castlegate, Clitheroe, Lancs.

Tyres Central Midlands Ltd. (704,726). October 3. Capital: £1,000 in £1 shares. To carry on the business of dealers in tyres, etc. The directors are: Richard H. Silcox and Joy I. Silcox, both of 4 Copthorne Gardens, Copthorne Park, Shrewsbury; Gertrude N. Silcox, 75 Belfield Road, Etwall, Derbys.; Frederick A. J. Couldery. Regd. office: 5 Old Steine, Brighton, 1.

Plastics Consultants Ltd. (704,790). October 4. Capital: £100 in £1 shares. The directors are: Ronald F. T. Edwards, 62 Burdon Lane, Cheam, Surrey; Ronald W. Harwood, 124 Little Gayes Lane, Upminster, Essex. Regd. office: Capel House, New Broad Street, E.C.2.

P. M. Hanbury Ltd. (703,574). September 19. Capital: £6,000 in £1 shares. To carry on the business of manufacturers of, and dealers in, plastics and synthetic substances, etc.

Changes of Name

Stack Protection Ltd. (585,622), manufacturers of, and dealers in, plastic covers for hay stacks, etc., Weybourne House, Alton. Name changed to Drix Products Ltd. on March 20 1961.

National Plastics (Sales) Ltd. (521,760), Avenue Works, Walthamstow Avenue, E.4. Name changed to National Plastics Ltd. on March 22 1961.

Bordesley Rubber Engineering Co. Ltd. (620,457), Houghton Street, West Bromwich. Name changed to Newform Engineering Ltd. on April 27 1961.

Northern Vending Ltd. (587,664), manufacturers of, and dealers in, plastics goods, etc., 175 Lockwood Road, Huddersfield. Name changed to Harold Fisher (Plastics) Ltd. on April 24 1961.

Overhill Plastics Ltd. (586,119), Holton Heath, Poole, Dorset. Name changed to Overhill Components Ltd. on April 14 1961.

Tunbridge Wells Tyre Co. Ltd. (448,094), 5 Sandling Road, Maidstone. Name changed to Sudbury Tyre Co. Ltd. on April 18 1961.

Latest Wills

Edwin Latham, of 420 The Ridge, St. Leonards-on-Sea, Sussex, rubber merchant, who died on February 25 1961, aged 62 years, left £9,248 net value.

William Thomas Blake, of 25 Borough Road, Dunstable, Beds., formerly owner of Blake's, tyre distributors, High Street South, Dunstable, who died on January 13 1961, left £36,103 net value.

Alderman Edmund Wrench Keyes, of Renehurst, Barrelwell Hill, Chester, founder of the Cheshire and North Wales Manufacturing Co. (later bought by the East London Rubber Co.), who died on June 3 1961, left £31,375 net value.

Christopher Morrison, of 36 Frenchwood Avenue, Preston, an expert in the design of machinery for the processing of rubber, who died on May 29 1961, left £1,693 net value.

Metal Box is producing this polythene container for a Goodyear (GB) jointing compound which makes gas-tight, waterproof and petrol-proof seals on car engines. The pack is closed by a white urea screw cap and wad

Increases of Capital

Alenco Ltd. (483,942), Beacon Works, Hargrave Road, Maidenhead. Increased on February 24 1961, by £500,000 in 2s. 6d. ordinary shares, beyond the registered capital of £1,000,000.

Colin Campbell Mixers Ltd. (621,725), consulting engineers to the chemical, petroleum, plastics, rubber and textile industries, etc., 17 Brazennose Street, Manchester, 2. Increased on October 27 1960, by £2,000 in £1 shares, beyond the registered capital of £3,000.

New Croydon Rubber Co. Ltd. (264,925), 36 Mitcham Lane, S.W.16. Increased on February 10 1961, by £20,000 in £1 ordinary shares, beyond the registered capital of £10,000.

J. Allen Rubber Co. Ltd. (373,483), Bilbao House, New Broad Street, E.C.2. Increased on January 23 1961, by £20,000 in £1 ordinary shares, beyond the registered capital of £150,000.

Invicta Plastics Ltd. (457,753), Harborough Road, Oadby, Leics. Increased on February 1 1961, by £27,000 in £1 ordinary shares, beyond the registered capital of £3,000.

Tube Lamination and Engineering Ltd. (484,261), manufacturers of, and dealers in, plastics, etc., Desborough Park Road, High Wycombe. Increased on February 9 1961, by £1,000 in £1 ordinary shares, beyond the registered capital of £2,000.

Brink and Thomas Ltd. (369,288), Bakelite mould makers, etc., 196 Morland Road, East Croydon. Increased on January 26 1961, by £18,000 in £1 ordinary shares, beyond the registered capital of £2,000.

Elco Plastics Ltd. (446,803), 20 Bloomsbury Square, W.C.1. Increased on February 9 1961, by £1,000 in £1 ordinary shares, beyond the registered capital of £26,000.

Autoprufe Ltd. (595,731), manufacturers of plastics products, etc., Bodmin Road, Wyken, Coventry. Increased on October 17 1960, by £4,900 in £1 shares, beyond the registered capital of £100.

CLASSIFIED ADVERTISEMENTS

RUBBER AND PLASTICS WEEKLY

APPOINTMENTS VACANT

8d. a word. Minimum 12/- Box 2/-

A CHEMIST, experienced in rubber industry, is required for the development laboratory of a company in North London area. A flair for developing sound ideas energetically is mainly required. Salary range £900—£1,250. Candidates, over 23 years of age, should supply full details.—Box 146. (146)

ASSISTANT plant engineer required by rubber manufacturers situated in Hertfordshire. Previous experience desirable of maintenance of machinery for the production of mandrel made braided hose, mouldings and mechanicals, and applicant must have previous general engineering experience in a rubber manufacturer's plant. Essential to have qualifications of AMIMechE or HNC level. For the successful candidate this post carries good prospects for very quick promotion, with ultimate responsibility for plant installation and maintenance, equipment design, development and all engineering staff. Applicant who is married and aged between 25 to 35 years will be preferably considered. Accommodation available after promotion. Contributory pension scheme, canteen facilities and bonus scheme.—Apply giving full details of age, education and experience to Electric Hose and Rubber Co. Ltd., Harpenden, Herts. (073)

ASSISTANT latex chemist, preferably with some knowledge of latex foam, required for interesting development work involving natural and synthetic latex. Time allowed for continued studies if required.—Applications to Lintafoam Ltd., P.O. Box 25, High Wycombe, Bucks. (160)

CHEMIST/technical assistant required for senior laboratory appointment. Applications are invited from chemists or technicians with experience in the compounding of rubber, plastics, etc., process and quality control. Accommodation arranged if necessary.—Write stating age, salary and full details to Kagan Textiles Ltd., Gannex Mills, Elland, Yorkshire. (158)

DEPUTY chief chemist. A qualified chemist/rubber technologist required in age group 35-45 by company on the South Coast. Experience of plastics technology would be an advantage. The company manufactures a specialised range of products.—Please write, giving details of age, education, experience, salary, etc., Personnel Manager, Fireproof Tanks Ltd., The Airport, Portsmouth. (156)

GROUP WORKS MANAGER. A substantial, rapidly growing group of companies in the Midlands, manufacturing rubber/resin adhesives, building chemicals, paints, mastics, etc., invites applications for the position of Group Works Manager. Age 32-40. Engineering apprenticeship and University degree or equivalent in chemical engineering preferable. Five years' managerial experience essential. Membership in senior professional Institution desirable. Substantial four-figure salary. Contributory pension plan with life assurance scheme. Car. Excellent prospects.—Apply in guaranteed confidence, giving contact telephone number, age, full details education, name of firms, positions held, dates, and initial and final salaries. Reference: G.W. 6275. Short listed candidates can expect acknowledgment within 10 days of receipt of application.—Dr. P. S. de Q. Cabot, Chairman, P. S. Cabot & Company Ltd., 37-41 Bedford Row, London, W.C.1. (147)

APPOINTMENTS VACANT

(continued)

KEEN young man, 25-35, with initiative, drive and responsibility required as sales representative by prominent rubber manufacturers. Some knowledge of motor-car industry an advantage. Good salary, car, pension scheme. Interesting and progressive job for the right man.—Box 145. (145)

PLASTICS technologist, age 25-30, required for a growing department of a large rubber manufacturing company in the East Midlands. Practical experience of injection and extrusion of nylon and PVC essential. Administration and production control experience desirable. DPI preferred but practical men will be given full consideration.—Please reply to Box 143. (143)

PARKINSON COWAN require a manager for their precision rubber moulding division. Wide technical experience in formulations and manufacture essential. Must be prepared to accept commercial and technical responsibilities. Experience in thermo-plastics an advantage. Only competent and energetic men need apply.—Wellington Works, Queen Street, Great Harwood, Blackburn, Lancs. (127)

RUBBER technician. Liverpool company require manager for rubberised hair plant.—Box 157. (157)

RUBBER technologist required by old-established rubber hose manufacturers in Hertfordshire for process control and laboratory development. Suitable for young man of 20/25 years, but must be semi-qualified to LIRI standard. Time will be allowed for study to AIRI level in London. Excellent prospects are offered to a man showing keenness, energy and with ability to shoulder responsibility. Contributory pension scheme, canteen facilities, good salary and bonus scheme.—Apply giving full details of age, education, training and experience to Electric Hose and Rubber Co. Ltd., Harpenden, Herts. (072)

RUBBER Latex Ltd. have a vacancy for a latex chemist/technologist. This is a senior appointment and carries a salary commensurate with experience and qualifications. Pension scheme in operation.—Write giving full details to Rubber Latex Ltd., Harling Road, Wythenshawe, Manchester 22. (159)

A unique opportunity

occurs in a Company manufacturing Adhesives, Mastics and Building Chemicals for a Chemist. After an initial period he will be required to take responsibility for production, develop technical service; and have an interest in problems relating to new products. Experience, enthusiasm and willingness to accept responsibility are perhaps more important than professional qualifications. The age limits are 25-30 but older applicants will be considered. A good salary will be offered and there is wide scope in a small but rapidly expanding organisation. The Company is situated a few miles from Dublin.

Reply to: Managing Director,
Evode Industries Limited,
Swords,
Co. Dublin,
Eire. (136)

APPOINTMENTS VACANT

PLASTICS EXTRUSION TECHNICIAN

P. B. COW (Plastics) LTD

invite applications for the position of Extrusion Technician to carry out production development in their Extrusion Department. A sound overall knowledge of PVC Section Extrusion, an engineering background and an ability to work under own initiative are essential requirements, although academic technical qualifications would be advantageous. An attractive salary commensurate with age, experience, etc., will be offered and applications in confidence should be addressed to:—

P. B. Cow (Plastics) Ltd.,
5 Falmouth Road,
Trading Estate,
Slough, Bucks.

and marked for the attention of the Technical Director. (116)

SPONGE chemist for development work and sponge technician for factory control required by expanding company in East Midlands. Pension scheme. Good conditions.—Write stating experience and salary required to Box 112. (112)

SENIOR process control technician wanted by George McLellan & Co., Ltd. Applicants should have qualifications of HNC standard or better; with at least three years' experience of process control in the rubber industry. Preferred age is in the range 25-35. The man appointed will find the work interesting and varied; and will have good prospects of advancement in an expanding technical organisation.—Applications giving particulars of education, experience and starting salary required to Personnel Manager, George McLellan & Co. Ltd., 125 Shuna Street, Maryhill, Glasgow, N.W. (144)

SENIOR foreman required, fully experienced in the compounding of synthetic rubbers and should have first class knowledge of all aspects of calendering. This will be a permanent progressive position in a rapidly expanding department and the selected applicant will be responsible to the existing Departmental Manager. Applicants should have held a similar supervisory position and had a number of years' experience in the above processes. Please write, giving details of age, experience, salary, etc.—Box 148. (148)

APPOINTMENTS WANTED

8d. a word, Minimum 12/- Box 2/-

AIRI requires position as chief chemist or senior technologist with progressive company. Wide experience extruding, bonding, mechanicals, oil seals.—Box 154. (154)

PLASTIC welding manager requires situation. Fully experienced in all aspects of production tooling and machine maintenance.—Box 161. (161)

This column can be YOUR best BUYER or SELLER

RUBBER & PLASTICS

MACHINERY

Why not see for YOURSELF

MACHINERY FOR SALE

8d. a word, Minimum 12/- Box 2/-

MANUFACTURERS of roughing machines for rubber sheeting, sponge rubber, splitting machines, leather cloth plant, embossing plates and rollers, spreading machines and presses.—G. L. Murphy Ltd., Imperial Works, Menston, Nr. Leeds. (238R)

MACHINERY FOR SALE

(continued)

HYDRAULIC presses, pumps, valves, new, also large second-hand stock.—Thompson and Son (Millwall) Ltd., Cuba Street, London, E.14. East 1844. (427)

ONE solvent recovery unit, modern type, automatic, recently overhauled. maker Sutcliffe Speakman. £5,000.—Box 152. (152)

SHAW 60in. x 22in. mill with 100 h.p. drive. 30in. x 24in. and 21in. single geared cracker with 200 h.p. drive. Pair of 50in. x 18in. single geared mills with 140 h.p. drive. Several smaller mills.—Reed Brothers (Engineering) Ltd. (Mr. C. E. M. Hardie—Receiver and Manager), Replant Works, Woolwich Industrial Estate, London, S.E.18. Tel.: Woolwich 7611 (141)

TWO 42in. open roll mixers with motor. £1,500.—Box 151. (151)

UNUSED 60in. x 22in. single geared mixing mill, friction ratio 1.15 to 1, Vibro mounted, Lunn safety equipment driven by 125 h.p. slip ring motor.—Box 142. (142)

VACUUM pumps, Edwards 'Speedivac' type, various models including B2, B1(2), A2, 2(2), IS50(10), ISC50(13), 2SC20, ISI50(6), 2S50, 2SC50(3), ISA50A, ISC450A, ISC30(3), ISP9C(8), 2S20 & 2S150. All with motors.—Leacroft Machinery Co., 1 London Road, Staines 51012. (153)

Donald Leaver Limited

1 LONDON ROAD, STAINES MIDDX. Phone STAINES 55171-2

FOR **SECONDHAND PLANT AND MACHINERY** (1057)

— PHONE RAINHAM 5655 —

PRESSES - MILLS - PLATENS - ETC.

Guaranteed Secondhand Plant

E. & V. GIBBONS LTD. LAMBS LANE, RAINHAM, ESSEX (430)

MACHINERY WANTED

8d. a word, Minimum 12/- Box 2/-

LABORATORY-SIZE internal rubber mixer, Shaw, size K.01, Bridge-Banbury Midget, 'B' or 00 or equivalent required. Write giving full particulars, price and where can be inspected.—Box 134. (134)

MELLOR Equipment Ltd., Springfield Lane, Salford, 3, buy used machinery of Francis Shaw and Joseph Robinson manufacture.—Telephone Manchester, Blackfriars 1866. (428)

TWO presses, 24in. x 24in. or larger, and hydraulic pumps, one 60in. mixing mill, one laboratory mixing mill.—Box 129. (129)

CAPACITY AVAILABLE

8d. a word, Minimum 12/- Box 2/-

COMPOUNDING capacity available for thermoplastics on modern 3D Banbury.—The Rubber Regenerating Co. Ltd., Trafford Park, Manchester 17. (149)

RUBBER and plastic mouldings, 25 to 100-ton compression. —Hole Bros., 266 Roman Road, East Ham, E.6. East Ham 1346. (123)

TRADE SERVICES

8d. a word, Minimum 12/- Box 2/-

P.V.C. and polyethylene compounded to customers' specification.—Box 150. (150)

MISCELLANEOUS

8d. a word, Minimum 12/- Box 2/-

USE chlorinated paraffin K71 for economical flame proofing of natural and synthetic rubbers. Regular supplies available from Chemicals Trading Company Limited, Cree House, 18-20 Creechurch Lane, London, E.C.3. Tel.: AVEnue 5488. (486)

ARTICLES WANTED

PVC *Sheeting scrap all types colour sorted and mixed regular quantities available*

MICHAEL S. STEVENS LIMITED
Station Works, 75c Upper Richmond Road, Putney, S.W.15
VANDYKE 6925 (739)

ADVERTISERS

YOUR ANNOUNCEMENTS MAY BE DISPLAYED IN THE CLASSIFIED SECTION AT THE FOLLOWING RATES

PER INCH SINGLE COLUMN

1 INSERTION **£3. 0. 0.** *7 INSERTIONS* **£2. 15. 0.** *EACH*
13 INSERTIONS OR MORE **£2. 10. 0.** *EACH*
OR AS LINES AT 5s. 6d. PER LINE

AUCTIONS

By Order of the Receiver, C. E. M. Hardie, Esq.,
Re: Messrs. Reed Brothers (Engineering) Limited

REPLANT WORKS,
WOOLWICH INDUSTRIAL ESTATE, S.E.18

HENRY BUTCHER & CO.

are instructed to offer for SALE BY AUCTION in LOTS at THE WORKS on
THURSDAY, 30TH NOVEMBER, 1961
at ELEVEN A.M. the SURPLUS
PLANT & MACHINERY
STORES & STOCK
including

HYDRAULIC FORGING PRESSES from 25 tons to 2,000 tons; SINGLE AND DOUBLE GEARED RUBBER ROLLING MILLS; EXTRUSION PRESSES up to 600 tons; HYDRAULIC 2 & 3 THROW HYDRAULIC PUMPS; 'FIELDING & PLATT' 400 TON CONCRETE SLAB PRESS; HIGH & LOW PRESSURE ACCUMULATORS; 'TAYLOR & FARLEY' 2 HIGH HOT & COLD ROLLING MILL; HYDRAULIC PIERCING, FLANGING, MOULDING & STRAIGHTENING PRESSES; CRACKING & BREAKING DOWN MILLS; HIGH & LOW PRESSURE BOILERS; VERTICAL BALING PRESSES up to 50 tons; GUILLOTINES; SCALPING MACHINES; GRINDING MILLS; DISHING & CURVING PRESSES UP TO 600 TONS; Boiler Feed Pumps; Electric Motors; S.S. & S.C. AND CAPSTAN LATHES; GRINDING MACHINES; AIR COMPRESSORS; ALTERNATING SETS; COPPER JACKETED & STAINLESS STEEL PANS; BENCHES; STORAGE RACKS & BINS; FLUORESCENT LIGHTS, ETC.; OFFICE & DRAWING OFFICE EQUIPMENT; FIXTURES & FITTINGS; MOTOR CARS & LORRIES.

Catalogues (when ready) may be obtained of:
Messrs. DIXON, WILSON & CO., Chartered Accountants, 24 Basinghall Street, London, E.C.2, and of
Messrs. HENRY BUTCHER & CO., Auctioneers, Valuers & Surveyors of Factories, Plant & Equipment, 73 Chancery Lane, London, W.C.2. Telephone: HOLborn 8411 (8 lines). (155)

PLANTATION RUBBER

• • •

RUBBER LATEX

• • •

All grades

For samples and prices please write to:

HILTON, WALLACE & CO. LTD

St. Dunstan's House

IDOL LANE, LONDON, E.C.3

Telephone: MANsion House 1005

Gummi und Asbest Plastische Massen

SPECIALIST PERIODICAL OF THE RUBBER ASBESTOS AND SYNTHETICS INDUSTRIES

Is read by all important plants in more than *fifty* countries and is the Advertising Medium of all firms interested in Import and Export trade.

Send for specimen copy and advertisement rates.

Annual Subscription costs DM 33,60 *inclusive of postage.*

A. W. GENTNER VERLAG

14a STUTTGART (GERMANY)

Exclusive Compounds

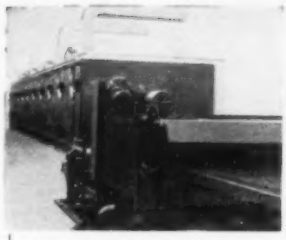
NATURAL or SYNTHETIC
for particular purposes

e.g. Tank Lining
Precision Mouldings
Gaskets and Jointings
Butyl Neoprene and Hypalon applications

Enquire

HATCHAM RUBBER
COMPANY LIMITED

PRINCES WAY, WADDON, CROYDON, SURREY
CROydon 6054/56



Complete factory installations and machinery for the manufacture of:

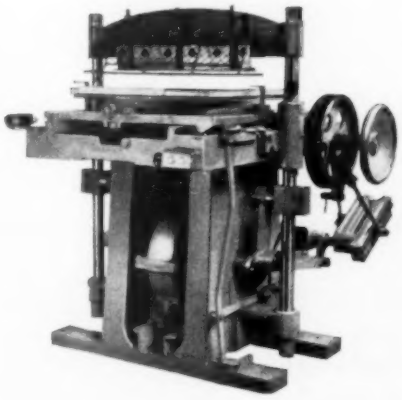
FOAM RUBBER
FOAM PLASTIC (POLYSTYRENE)
DIPPED ARTICLES (LATEX AND PLASTIC)
MANY MANUFACTURING PROCESSES IN OTHER FIELDS

Apart from this we can offer advice and technical assistance (know how)

EUR-O-MATIC LIMITED
European Company for Mechanisation
WEESP HOLLAND
P.O.B. 25. Grams: Euromatic Weesp Telex: 14182 Tel: 2843

Hugo Diepel

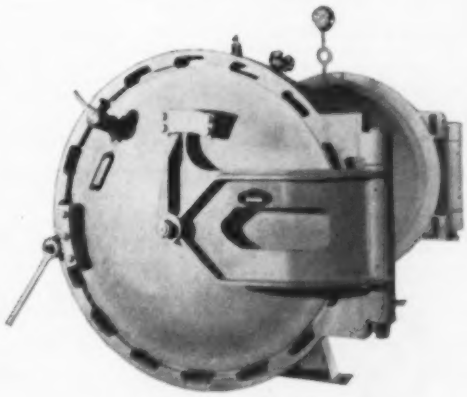
Stärkestrasse 15 · *Hanover*



Cutting machines for Rubber and Plastics
Grinding and Abrasive machinery
Tube filling and closing machines
Machinery for the manufacture of V belting

Specialists in

VULCANISING PANS
AUTOCLAVES AND PRESSURE VESSELS
BOLTLESS DOORS MANUALLY OR POWER OPERATED



MANUFACTURED BY

R. LORD & SONS LTD.
Barnbrook Boiler Works, Bury, Lancashire
Telephone: Bury 4862 (2 lines)

INDEX to ADVERTISERS

	Page
Abrasive Developments Ltd.	—
A.E.W. Ltd.	—
Allcock, J., & Sons Ltd.	—
Amalgamated Oxides (1939) Ltd.	799
Anchor Chemical Co. Ltd.	787
Anderson, Joseph, & Sons Ltd.	iii
Armour Hess Chemicals Ltd.	—
Associated-Rediffusion Ltd.	—
Astor Boisselier & Lawrence Ltd.	—
Baker Perkins Ltd.	ii
Barwell Engineering Ltd.	—
Belgrave Industries (Exports) Ltd.	—
Berk, F. W., & Co. Ltd.	—
Berstorff, Hermann	—
B.I.P. Chemicals Ltd.	—
Birch, Singleton, W., & Sons Ltd.	—
Bone Bros.	—
Boston Marine & General Eng. Co. Ltd.	—
Bridge, David, & Co. Ltd.	784
Bright, John, & Bros. Ltd.	i
British Electrical Development Association	—
British Geon Ltd.	—
British Nylon Spinners Ltd.	—
British Recovered Rubber Co. Ltd.	—
British Resin Products Ltd.	—
British Titan Products Co. Ltd.	—
British Transport Commission	—
Bush Beach & Segner Bayley Ltd.	—
Cabot Carbon Ltd.	—
Carter Bros. (Rochdale) Ltd.	—
Carlton Press Knives Ltd.	—
Chance & Hunt	—
Chemical & Insulation, Ltd.	—
C.I.C. Engineering Ltd.	—
Cleggswood Oil Distillery Ltd.	—
Cohen, George, Sons & Co. Ltd.	—
Columbian International (Gt. Britain) Ltd.	v
Consolidated Zinc Corporation (Sales) Ltd.	—
Courtaulds Ltd.	—
Crosfield, Joseph, & Sons Ltd.	—
Croxton & Garry Ltd.	814
Derrick Davis Plastics Ltd.	—
Dietzel, Hugo	813
Distillers Co. Ltd., The	—
Dixon, T. H., & Co. Ltd.	—
Docker, John, & Co. (Engs.) Ltd.	783
Dunlop Rubber Co. Ltd.	—
Du Pont Co. (United Kingdom) Ltd.	—
Durham Raw Materials Ltd.	—
Economist Intelligence Unit Ltd., The	—
Ellison, George, Ltd.	—
English Clays Lovering Pochin & Co. Ltd.	—
English Electric Co. Ltd., The	iv
Esso	—
eur-O-matic	813
Fawcett Preston & Co. Ltd.	—
Felber Juker & Co. Ltd.	793
Ferguson, A. O., & Co. Ltd.	—
Ferguson, James, & Sons Ltd.	—

	Page
Ferguson Shiers Ltd.	—
Firestone Tyre & Rubber Co. Ltd.	—
Foamair Ltd.	—
Geigy Co. Ltd., The	Cover i
Goodyear Tyre & Rubber Co. Ltd.	—
Greeff, R. W., & Co. Ltd.	—
Gresham & Craven Ltd.	—
Gummi und Asbest	812
H.F. Industrial Services Ltd.	—
H.K. Import & Export Ltd.	—
Halsteads Engineers (Leyland) Ltd.	—
Hankin, Geo., & Co. Ltd.	—
Hardman & Holden Ltd.	—
Harrison Jones	—
Hatcham Rubber Co. Ltd.	813
Hay & Robertson Ltd.	795
Hilton, Wallace, & Co. Ltd.	812
Hubron Rubber Chemicals Ltd.	Cover iii
Hughes & Hughes Ltd.	—
Hunt Heat Exchangers Ltd.	—
Iddon Bros. Ltd.	—
Iliffe Industrial Publications Ltd.	—
Imperial Chemical Industries Ltd. (Billingham)	—
Imperial Chemical Industries Ltd. (Dyestuffs)	791
Imperial Chemical Industries Ltd. (Plastics)	—
Imperial Chemical Industries Ltd. (Terylene)	—
Institution of the Rubber Industry	—
International Corporation Ltd.	—
International Synthetic Rubber Co. Ltd.	789
Ioco Ltd.	—
K.W. Chemicals	—
Kautschuk und Gummi	—
Kendell, T., & Sons Ltd.	—
Ketjen Carbon	—
Kuala Lumpur-Kepong Amalgamated Ltd.	—
Lankro Chemicals Ltd.	—
Laporte Titanium Ltd.	—
Latex Engineering Co.	—
Lavino (London) Ltd.	—
Leaver, Donald, Ltd.	—
Leeds & Bradford Boiler Co. Ltd., The	
Lindsay & Williams Ltd.	vi
Lonabarc Ltd.	—
Londex Ltd.	—
London & Scandinavian	—
Lord, R., & Sons Ltd.	813
McKechnie Bros. Ltd.	—
Maclaine, Watson & Co. Ltd.	—
Mersey White Lead Co. Ltd., The	—
Metal Box Co.	—
Micafine Ltd.	—
Monsanto Chemicals Ltd.	—
Morton Machine Co. Ltd.	—
Muehlstein, H., & Co. (London) Ltd.	
Muller, Max	—
Natural Rubber Bureau	—
New Conveyor Co. Ltd.	—

	Page
Nederlandsch Verkoopkantoor Voor Chemische Producten N.V.	—
Noble Lowndes Pension Service, The	—
Northwestern Rubber Co. Ltd.	—
Novadel Ltd.	—
Oswald & Duncan Ltd.	—
Philblack Ltd.	—
Phoenix Rubber Co. Ltd.	—
Planters Engineering Co. Ltd.	—
Polymer (United Kingdom) Ltd.	—
Preston Tyre Fabric Manufacturing Co. Ltd.	—
Price's (Bromborough) Ltd.	—
Pullen, James H., (1942) Ltd.	vi
Quick-Wrap Tubing Co. Ltd.	—
Reed Bros. (Eng.) Ltd.	—
Revue Generale du Caoutchouc	—
Rhein-Chemie GmbH.	—
Robinson Bros. Ltd.	viii
Ro-Search Inc.	—
Robinson, Joseph, & Co. Ltd.	—
Rotunda Ltd.	—
Rubber Age (New York) Ltd.	—
Rubber Estate Agency Ltd.	—
Rubber Latex Ltd.	802
Rubber Regenerating Co. Ltd.	Cover ii, iv
Scott Bader & Co. Ltd.	—
Sealants Ltd.	—
Shaw, Francis, & Co. Ltd.	—
Shell Mex & B.P. Ltd.	—
Shell Chemical Co. Ltd.	—
Shell International Chemical Co. Ltd.	—
Smith, Alfred, Ltd.	vii
Smith, Wilfred, Ltd.	—
Squire, Frederick, Ltd.	—
Stechler, L., & Co. Ltd.	—
Steel, J. M., & Co. Ltd.	—
Steele & Cowlishaw Ltd.	—
Stocker, W. B., & Co. Ltd.	—
Storeys of Lancaster	—
Stott, James, Ltd.	—
Sturge, John & E., Ltd.	—
Sussex Rubber Co. Ltd.	—
Sutcliffe Engineering Components Ltd.	—
Sutcliffe Speakman & Co. Ltd.	—
Tanner Bros. (Greenfield) Ltd.	—
Tilghman's Ltd.	—
Union Carbide Ltd.	—
United Norit Sales Corporation Ltd.	—
United Wire Works Ltd., The	—
Universal Oil Co. Ltd.	—
Universal Oil Products Co.	—
Vacu-Blast Ltd.	—
Verson Engineering Co. Ltd.	—
Wallace, H. W., & Co. Ltd.	—
Wallis Engineering Co.	—
Washington Chemicals	—
Webb, W. F. (Engineers) Ltd.	—
Welwyn Tool Co. Ltd.	—
Whiffen & Sons Ltd.	—
Witco Chemical Co. Ltd.	—
Zama Ltd.	—

MICROMYA

OMYA BSH

The finest natural whiting in the world

Has the patented coating

From the French Quarries and Factories of the OMYA Organization

HEAD OFFICE: PLUESS-STAUFER, A.G., OFTRINGEN, SWITZERLAND

Samples and Literature from:

CROXTON and GARRY LTD.,
27 St. James Road, Kingston-on-Thames
Surrey

KINgston 9444 (4 lines)

BRITISH GENERAL PURPOSE FURNACE BLACK

BEST FOR SYNTHETICS

A PRODUCT OF
UNITED CARBON BLACK LTD

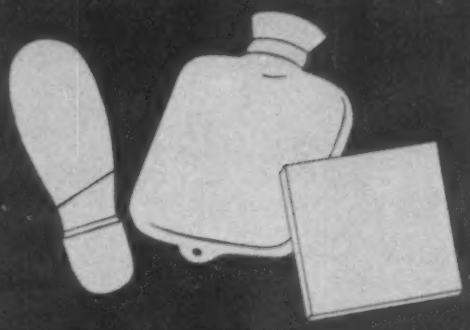
Samples and full Technical Data from Sole Distributors—

HUBRON RUBBER CHEMICALS LTD
WILFRID SMITH LIMITED

ALBION STREET, FAILSWORTH, Near MANCHESTER
Telephone: FAILSWORTH 2691 (5 lines) *Telegrams:* 'HUBRONRUB'

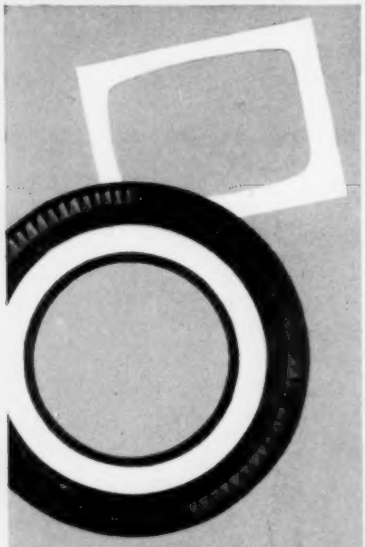
16 PHILPOT LANE
LONDON, E.C.3
Telephone: MANSION HOUSE 2064
Telegrams: 'ACCOLLYST,' BILGATE, LONDON

SELECT A NAUGATUCK ANTIOXIDANT



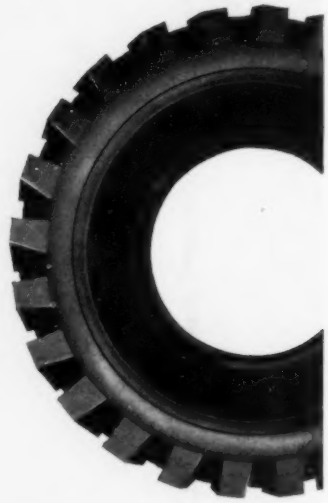
OCTAMINE

A low-cost, general-purpose antioxidant, it is equally effective in black and non-black compounds, being almost non-staining and non-discolouring. It is specially recommended for use in Neoprene, where, in addition to providing antioxidant protection, it also provides protection against bin scorch, and is effective in nitrile rubber, where it acts as a stabiliser during hot temperature blending with plastics.



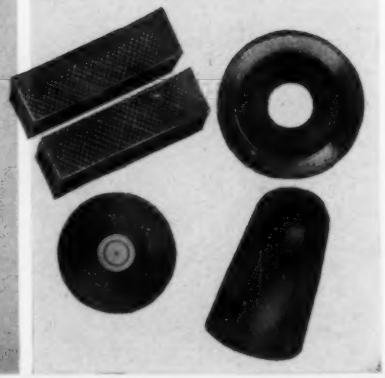
B.X.A.

An extremely efficient general-purpose antioxidant, its low price and effectiveness at very low concentrations make this antioxidant remarkably economic in use. Only very moderately staining and discolouring, it is recommended for maximum protection for both natural and synthetic rubbers. Outstanding for heat protection.



NAUGAWHITE

A low-priced, non-staining, non-discolouring antioxidant, suitable for use in all white and light-coloured applications. Readily forming a stable emulsion, it is particularly suitable for use in latex, and in latex foam it is most effective in minimising compression set.



BLE 25

BLE/25 is a superlative antioxidant for tyres, high speed mechanicals, compounds heavily loaded with carbon black or other fillers, as it is a flux of the best type. Its heat-ageing qualities and flex-cracking have no equal among antioxidants.

Manufactured under U.S. Rubber licence by

THE RUBBER REGENERATING COMPANY LIMITED

TRAFFORD PARK · MANCHESTER 17 · Phone: TRAfford Park 1424 · 'Grams: "Regenerate"

Printed in Great Britain by F. J. PARSONS, Ltd., London and Hastings, and published by the Proprietors, MACLAREN & SONS, LTD. Maclaren House, 131 Great Suffolk Street, London, S.E.1